alpha Value Line

PLANETARY GEARBOXES
NP / NPL / NPS / NPT / NPR

The strength of the planetary gearboxes of the alpha Value Line lies in the combination of economy and variety of output variants. Additionally, the gearboxes are suitable for very diverse applications – thanks to the range of ratios and the optimal positioning accuracy.


NP
NPL
NPS
NPR
NPT

alpha Value Line in action

INDIVIDUAL TALENTS –
for trend-setting research

The planetary gearboxes of the alpha Value Line are suitable for universal application and offer the best economical solution for almost every requirement – on each axis and for all industries.

But the NP servo gearbox is also used outside the typical industrial environment: For research purposes, the planetary gearboxes are used in installations for the simulation of tides or tsunamis as well as for coastline and port basin optimization. With the wave simulators, shipyards or research centers can simulate and investigate the behavior of ships at sea or in a port, in ordinary but also in extreme situations.

The low-backlash NP planetary gearboxes of the alpha Value Line drive axes optimally in installations of multi-servo axes in wave tanks worldwide – for example in Great Britain, the USA, China and Italy.

Each wave simulator has a certain number of paddles for generating very special wave types and frequencies. Depending on the size of the simulator and the type of wave to be simulated – deep and shallow water, sea, current and storm conditions or river mouths – a belt drive, ball screw or rack and pinion drive are used. The size of the individual paddles can vary from a few centimeters to several meters.

Technical support, quality and flexibility were the decisive factors for the decision to cooperate with WITTENSTEIN in the simulation system. The NP gearboxes of the alpha Value Line offer the customer the ideal mix of precision, dynamic performance and price.

NP / NPL / NPS / NPT / NPR – Individual Talents

The planetary gearboxes of the NP series are universally applicable and offer the best economical solution for almost every requirement, in each axis in every sector. The various drives and output interfaces are offered as a compatible extension to the existing portfolio of WITTENSTEIN alpha – for maximum flexibility in design, assembly, and use.

PRODUCT HIGHLIGHTS

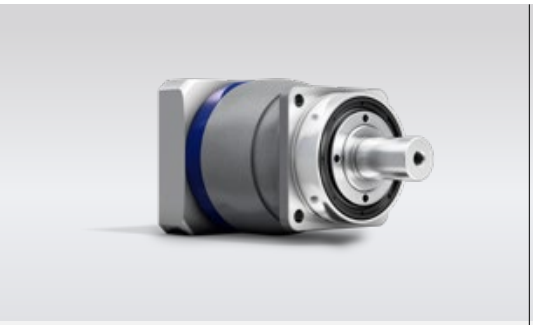
Unique modularity in this segment
With five series including five different output interfaces, the NP series offers maximum flexibility. From a simple machine connection using a B5 or B14 output flange to a flange connection or adjustment via slotted holes – the suitable solution for your machine requirements.

High economy
The gearboxes of the alpha Value Line are very economical to purchase, unbeatably efficient in operation, and maintenance free over their entire service life.

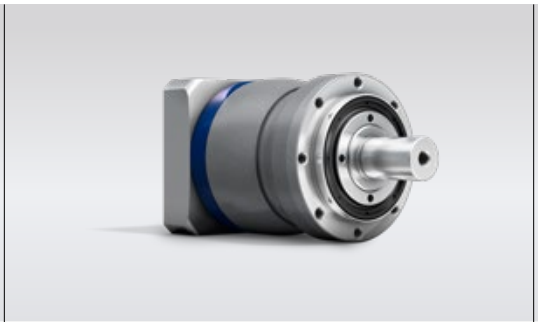
High flexibility
Modular configuration of the interfaces to the motor and to the application. The gearboxes are available with different clamping hub diameters, drive stages, design and mounting options.

Highest power density
The HIGH TORQUE version provides gearboxes with the highest power density.

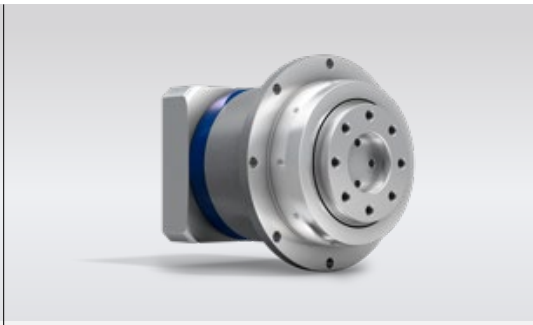
Fast sizing
Efficient online sizing within seconds in the SIZING ASSISTANT on the basis of the application data or the motor.



NPS – planetary gearbox with SP⁺ output geometry



NPL – planetary gearbox with reinforced bearings and B14 output geometry



NPT – planetary gearbox with TP⁺ output geometry

More information about the alpha Value Line: simply scan the QR code using your smartphone.

https://alpha.wittenstein.de/en-en/alpha-value-line/

A **Two-piece clamping hub system of the high-end segment**

- Labeled with the tightening torques for secure, fast motor mounting
- Guarantees best synchronization properties

B **Various output shapes**

- Five variants of the NP series available: including with B5 flange mounting, output flange, etc.
- Higher external forces possible with NPL, NPS, and NPR

C **High ratio variation**

- Large number of ratios (i=3 to i=100)
- Available in the common binary ratios

D **Differentiated power density**

- The HIGH TORQUE version permits an even higher torque density for sizes 015 – 035

NPR – planetary gearbox with slot holes for optimal rack and pinion mounting

SIZING ASSISTANT

YOUR GEARBOX WITHIN SECONDS

Efficient gearbox sizing within seconds – online without login
www.sizing-assistant.com

				1-stage				
Ratio		**i**		**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]		T_{2a}	*Nm*	18	22	22	21	21
			in.lb	159	195	195	186	186
Max. acceleration torque [e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	11	14	14	13	13
			in.lb	97	124	124	115	115
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	26	26	26	26	26
			in.lb	230	230	230	230	230
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)		n_{1N}	*rpm*	3800	4000	4300	4400	4600
Max. input speed		n_{1Max}	*rpm*	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1=3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	0.1	0.09	0.08	0.08	0.08
			in.lb	0.89	0.8	0.71	0.71	0.71
Max. backlash		j_t	*arcmin*	≤ 10				
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	1.2	1.2	1.2	0.85	0.85
			in.lb/arcmin	11	11	11	7.5	7.5
Max. axial force [c)]		F_{2AMax}	*N*	700				
			lb_f	158				
Max. lateral force [c)]		F_{2QMax}	*N*	800				
			lb_f	180				
Max. tilting moment		M_{2KMax}	*Nm*	23				
			in.lb	204				
Efficiency at full load		η	*%*	97				
Service life		L_h	*h*	> 20000				
Weight (incl. standard adapter plate)		m	*kg*	0.7				
			lb_m	1.5				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*	≤ 58				
Max. permitted housing temperature			*°C*	+90				
			°F	+194				
Ambient temperature			*°C*	–15 to +40				
			°F	+5 to +104				
Lubrication				Lubricated for life				
Direction of rotation				In- and output same direction				
Protection class				IP 64				
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0005BA012.000-X				
Bore diameter of coupling on the application side			*mm*	X = 004.000 - 012.700				
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.03	0.03	0.03	0.02	0.02
				10^{-3} in.lb.s²	0.03	0.03	0.03	0.02	0.02
	A	9	J_1	*kgcm²*	0.03	0.03	0.03	0.03	0.02
				10^{-3} in.lb.s²	0.03	0.03	0.03	0.03	0.02
	B	11	J_1	*kgcm²*	0.05	0.05	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12

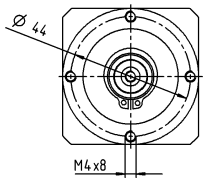
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

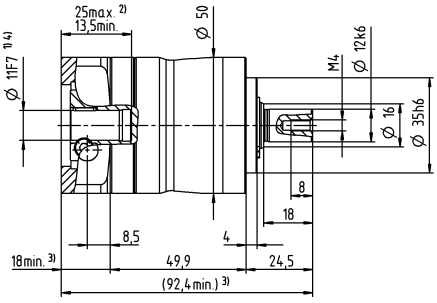
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

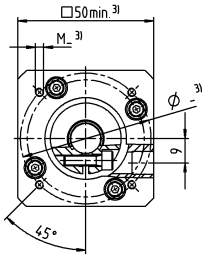
1-stage

Motor shaft diameter [mm]

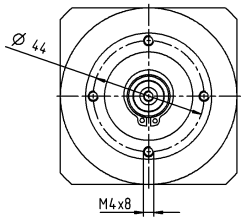
up to 11 [4] (B) [5]
clamping hub
diameter

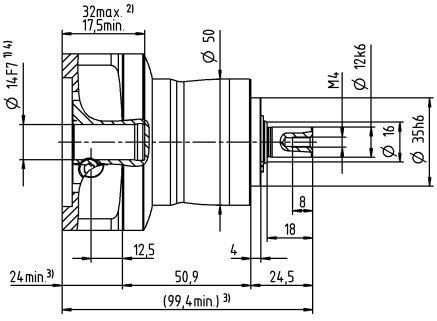


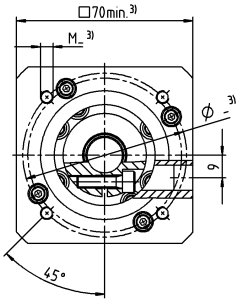




up to 14 [4] (C)
clamping hub
diameter

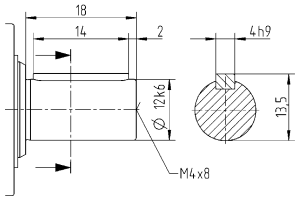






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage									
Ratio	**i**			**16**	**20**	**25**	**28**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		18	18	22	18	22	18	22	21	22	21
		in.lb		159	159	195	159	195	159	195	186	195	186
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		11	11	14	11	14	11	14	13	14	13
		in.lb		97	97	124	97	124	97	124	115	124	115
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		26	26	26	26	26	26	26	26	26	26
		in.lb		230	230	230	230	230	230	230	230	230	230
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		4000	4000	4000	4300	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.11	0.1	0.1	0.09	0.09	0.08	0.08	0.08	0.08	0.08
		in.lb		0.97	0.89	0.89	0.8	0.8	0.71	0.71	0.71	0.71	0.71
Max. backlash	j_t	*arcmin*		≤ 13									
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.85	1.2	0.85
		in.lb/arcmin		11	11	11	11	11	11	11	7.5	11	7.5
Max. axial force [c)]	F_{2AMax}	*N*		700									
		lb_f		158									
Max. lateral force [c)]	F_{2QMax}	*N*		800									
		lb_f		180									
Max. tilting moment	M_{2KMax}	*Nm*		23									
		in.lb		204									
Efficiency at full load	η	*%*		95									
Service life	L_h	*h*		> 20000									
Weight (incl. standard adapter plate)	*m*	*kg*		0.9									
		lb_m		2									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58									
Max. permitted housing temperature		*°C*		+90									
		°F		+194									
Ambient temperature		*°C*		–15 to +40									
		°F		+5 to +104									
Lubrication				Lubricated for life									
Direction of rotation				In- and output same direction									
Protection class				IP 64									
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0005BA012.000-X									
Bore diameter of coupling on the application side			*mm*	X = 004.000 - 012.700									
Mass moment of inertia (relates to the drive) **Clamping hub diameter [mm]**	Z	8	J_1	*kgcm²*	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

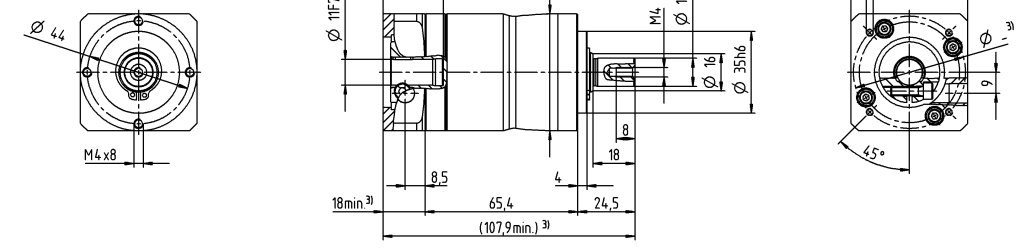
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

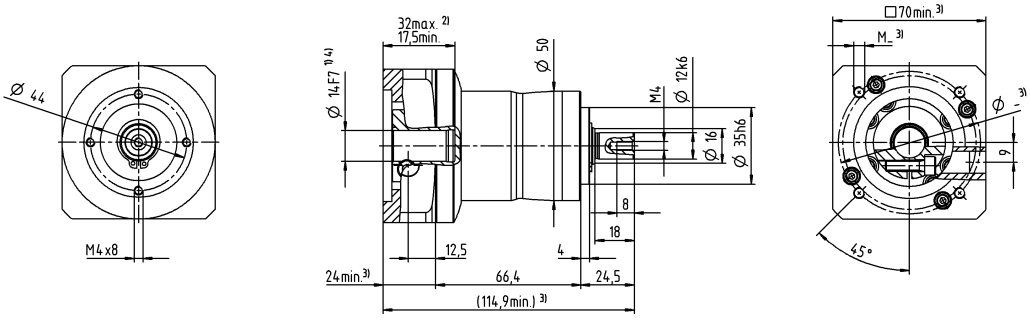
2-stage

Motor shaft diameter [mm]

up to 11 [4] (B) [5] clamping hub diameter

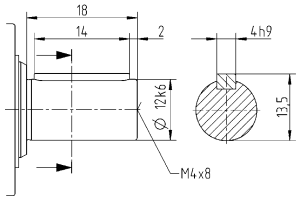


up to 14 [4] (C) clamping hub diameter



Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	51	56	64	64	56	56
				in.lb	451	496	566	566	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	32	35	40	40	35	35
				in.lb	283	310	354	354	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	80	80	80	80	80	80
				in.lb	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3300	3500	3700	4000	4100	4300
Max. input speed			n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.24	0.2	0.17	0.14	0.13	0.12
				in.lb	2.1	1.8	1.5	1.2	1.2	1.1
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.3	3.3	3.3	3.3	2.8	2.8
				in.lb/arcmin	29	29	29	29	25	25
Max. axial force [c)]			F_{2AMax}	*N*	1550					
				lb_f	349					
Max. lateral force [c)]			F_{2QMax}	*N*	1700					
				lb_f	383					
Max. tilting moment			M_{2KMax}	*Nm*	72					
				in.lb	637					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	1.9					
				lb_m	4.2					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 59					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA016.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.22	0.18	0.16	0.14	0.14	0.13
				10^{-3} *in.lb.s²*	0.19	0.16	0.14	0.12	0.12	0.12
	B	11	J_1	*kgcm²*	0.24	0.19	0.18	0.16	0.15	0.15
				10^{-3} *in.lb.s²*	0.21	0.17	0.16	0.14	0.13	0.13
	C	14	J_1	*kgcm²*	0.32	0.27	0.25	0.23	0.23	0.22
				10^{-3} *in.lb.s²*	0.28	0.24	0.22	0.2	0.2	0.19
	D	16	J_1	*kgcm²*	0.45	0.4	0.38	0.36	0.36	0.35
				10^{-3} *in.lb.s²*	0.4	0.35	0.34	0.32	0.32	0.31
	E	19	J_1	*kgcm²*	0.53	0.48	0.46	0.44	0.44	0.43
				10^{-3} *in.lb.s²*	0.47	0.42	0.41	0.39	0.39	0.38

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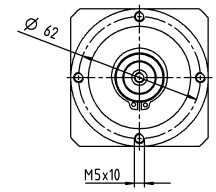
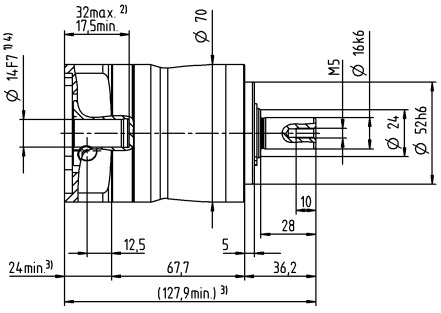
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

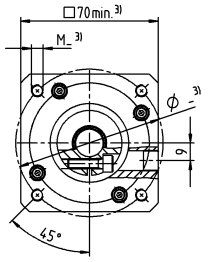
1-stage

Motor shaft diameter [mm]

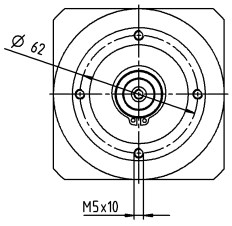
up to 14 [4] (C) [5] clamping hub diameter

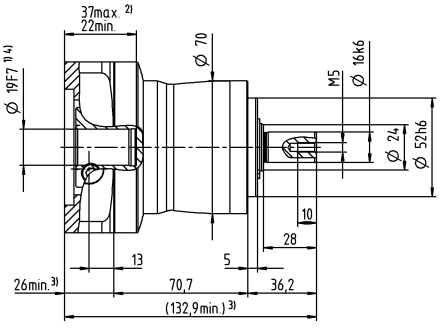


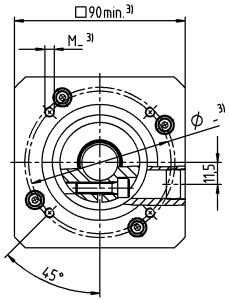




up to 19 [4] (E) clamping hub diameter

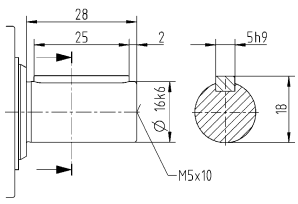






Other output variants

Shaft with key



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[1)] Check motor shaft fit
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Longer motor shafts are possible, please contact alpha
[3)] The dimensions depend on the motor
[4)] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5)] Standard clamping hub diameter

NP 015 MF 2-stage

				2-stage													
Ratio	**i**			**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		51	51	56	56	64	56	51	56	64	56	64	56	64	56
		in.lb		451	451	496	496	566	496	451	496	566	496	566	496	566	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		32	32	35	35	40	35	32	35	40	35	40	35	40	35
		in.lb		283	283	310	310	354	310	283	310	354	310	354	310	354	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3800	4000	3800	4000	4000	4300	4600	4400	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.13	0.11	0.12	0.11	0.1	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08
		in.lb		1.2	0.97	1.1	0.97	0.89	0.8	0.8	0.8	0.8	0.71	0.71	0.71	0.71	0.71
Max. backlash	j_t	*arcmin*		≤ 10													
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		3.3	3.3	3.3	3.3	3.3	3.3	4	3.3	3.3	3.3	3.3	2.8	3.3	2.8
		in.lb/arcmin		29	29	29	29	29	29	35	29	29	29	29	25	29	25
Max. axial force [c)]	F_{2AMax}	*N*		1550													
		lb_f		349													
Max. lateral force [c)]	F_{2QMax}	*N*		1700													
		lb_f		383													
Max. tilting moment	M_{2KMax}	*Nm*		72													
		in.lb		637													
Efficiency at full load	η	*%*		95													
Service life	L_h	*h*		> 20000													
Weight (incl. standard adapter plate)	m	*kg*		1.9													
		lb_m		4.2													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58													
Max. permitted housing temperature		*°C*		+90													
		°F		+194													
Ambient temperature		*°C*		–15 to +40													
		°F		+5 to +104													
Lubrication				Lubricated for life													
Direction of rotation				In- and output same direction													
Protection class				IP 64													
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X													
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

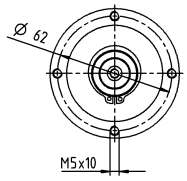
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

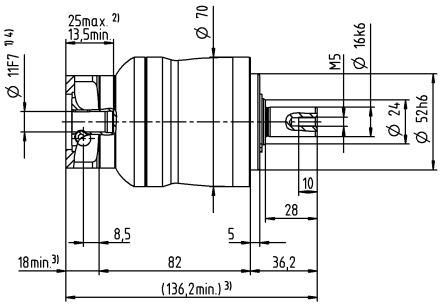
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

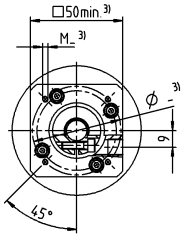
2-stage

Motor shaft diameter [mm]

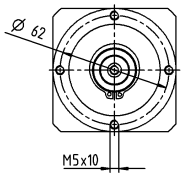
up to 11 [4] (B) [5] clamping hub diameter

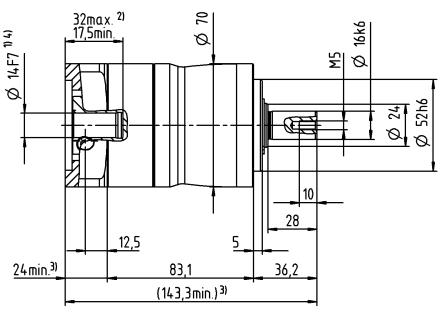


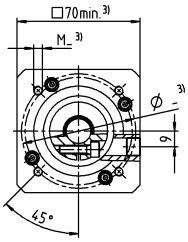




up to 14 [4] (C) clamping hub diameter

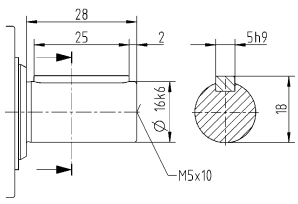






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	128	152	160	160	144	144
				in.lb	1133	1345	1416	1416	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	80	95	100	100	90	90
				in.lb	708	841	885	885	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3100	3300	3400	3600	3700	3900
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.38	0.31	0.26	0.21	0.19	0.17
				in.lb	3.4	2.7	2.3	1.9	1.7	1.5
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	9.5	9.5	9.5	9.5	8.5	8.5
				in.lb/arcmin	84	84	84	84	75	75
Max. axial force [c)]			F_{2AMax}	*N*	1900					
				lb_f	428					
Max. lateral force [c)]			F_{2QMax}	*N*	2800					
				lb_f	630					
Max. tilting moment			M_{2KMax}	*Nm*	137					
				in.lb	1213					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	3.8					
				lb_m	8.4					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.57	0.46	0.37	0.3	0.27	0.25
				10^{-3} *in.lb.s²*	0.5	0.41	0.33	0.27	0.24	0.22
	D	16	J_1	*kgcm²*	0.71	0.61	0.52	0.43	0.42	0.4
				10^{-3} *in.lb.s²*	0.63	0.54	0.46	0.38	0.37	0.35
	E	19	J_1	*kgcm²*	0.8	0.7	0.61	0.53	0.51	0.49
				10^{-3} *in.lb.s²*	0.71	0.62	0.54	0.47	0.45	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	1.6	1.6	1.5	1.5
				10^{-3} *in.lb.s²*	1.6	1.5	1.4	1.4	1.3	1.3
	H	28	J_1	*kgcm²*	1.5	1.4	1.3	1.3	1.2	1.2
				10^{-3} *in.lb.s²*	1.3	1.2	1.2	1.2	1.1	1.1

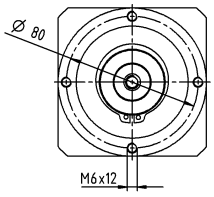
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

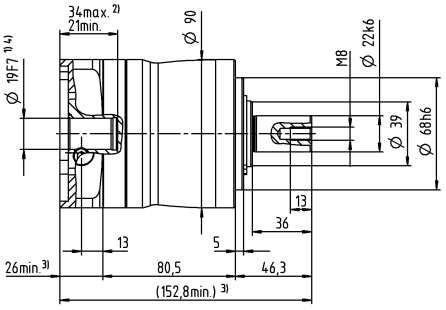
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

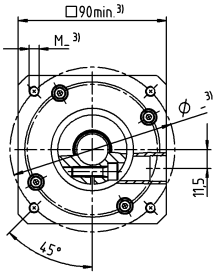
1-stage

Motor shaft diameter [mm]

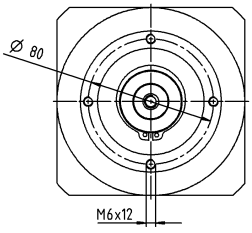
up to 19 [4] (E) [5] clamping hub diameter

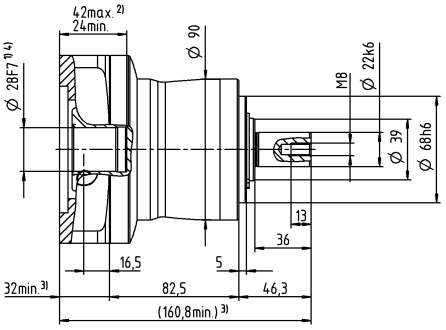


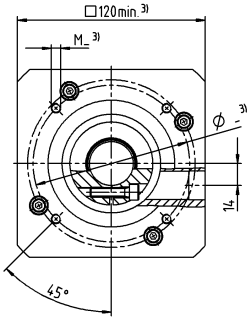




up to 28 [4] (H) clamping hub diameter

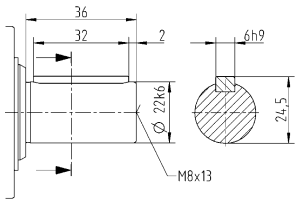






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NP 025 MF 2-stage

				2-stage													
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		128	128	128	152	152	160	152	128	152	160	152	160	144	160	144
		in.lb		1133	1133	1133	1345	1345	1416	1345	1133	1345	1416	1345	1416	1275	1416	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		80	80	80	95	95	100	95	80	95	100	95	100	90	100	90
		in.lb		708	708	708	841	841	885	841	708	841	885	841	885	797	885	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
		in.lb		1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3300	3500	3700	3500	3700	3700	4000	4300	4100	4000	4300	4300	4100	4300	4300
Max. input speed	n_{1Max}	*rpm*		8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.22	0.18	0.16	0.16	0.15	0.14	0.12	0.12	0.12	0.12	0.11	0.1	0.1	0.1	0.09
		in.lb		1.9	1.6	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.1	0.97	0.89	0.89	0.89	0.8
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	8.5	9.5	8.5
		in.lb/arcmin		84	84	84	84	84	84	84	84	84	84	84	84	75	84	75
Max. axial force [c)]	F_{2AMax}	*N*		1900														
		lb_f		428														
Max. lateral force [c)]	F_{2QMax}	*N*		2800														
		lb_f		630														
Max. tilting moment	M_{2KMax}	*Nm*		137														
		in.lb		1213														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	*m*	*kg*		4.1														
		lb_m		9.1														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 59														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 64														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA022.000-X														
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.26	0.22	0.21	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
				10^{-3} in.lb.s²	0.23	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	0.28	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
				10^{-3} in.lb.s²	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.35	0.31	0.3	0.3	0.3	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
				10^{-3} in.lb.s²	0.31	0.27	0.27	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	D	16	J_1	*kgcm²*	0.48	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.42	0.39	0.38	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.56	0.52	0.51	0.51	0.51	0.5	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.5	0.46	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

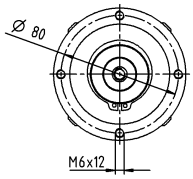
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

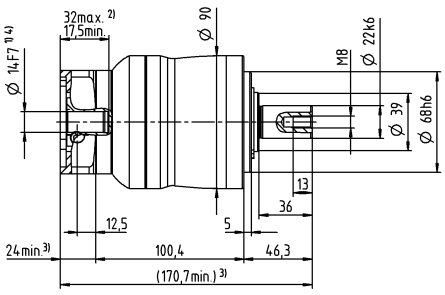
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

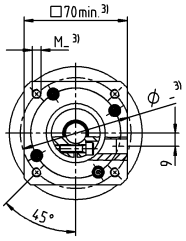
2-stage

Motor shaft diameter [mm]

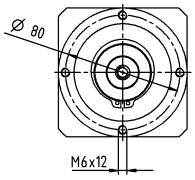
up to 14 [4] (C) [5] clamping hub diameter

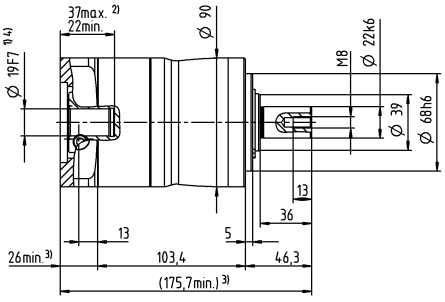


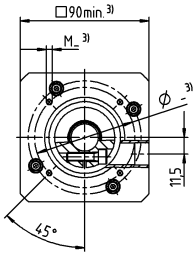




up to 19 [4] (E) clamping hub diameter

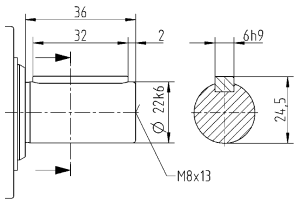






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	320	408	400	400	352	352
				in.lb	2832	3611	3540	3540	3115	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	255	250	250	220	220
				in.lb	1770	2257	2213	2213	1947	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2300	2500	2600	2800	2900	3000
Max. input speed			n_{1Max}	*rpm*	6000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1	0.85	0.76	0.66	0.63	0.58
				in.lb	8.9	7.5	6.7	5.8	5.6	5.1
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	22	25	25	25	22	22
				in.lb/arcmin	195	221	221	221	195	195
Max. axial force [c)]			F_{2AMax}	*N*	4000					
				lb_f	900					
Max. lateral force [c)]			F_{2QMax}	*N*	5000					
				lb_f	1125					
Max. tilting moment			M_{2KMax}	*Nm*	345					
				in.lb	3054					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	9.4					
				lb_m	21					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X					
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	2.6	1.7	1.4	1	1	0.9
				10^{-3} in.lb.s²	2.3	1.5	1.2	0.89	0.89	0.8
	G	24	J_1	*kgcm²*	3.4	2.5	2.2	1.8	1.7	1.7
				10^{-3} in.lb.s²	3	2.2	1.9	1.6	1.5	1.5
	H	28	J_1	*kgcm²*	3.1	2.2	1.9	1.5	1.4	1.4
				10^{-3} in.lb.s²	2.7	1.9	1.7	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	7.2	6.3	5.9	5.6	5.5	5.4
				10^{-3} in.lb.s²	6.4	5.6	5.2	5	4.9	4.8
	K	38	J_1	*kgcm²*	8.3	7.4	7.1	6.8	6.7	6.6
				10^{-3} in.lb.s²	7.3	6.5	6.3	6	5.9	5.8

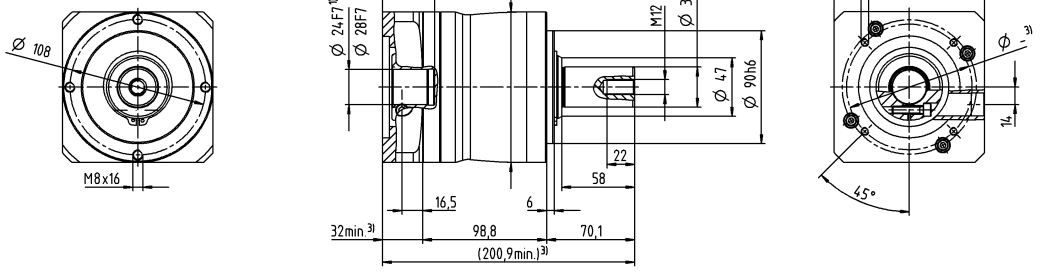
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

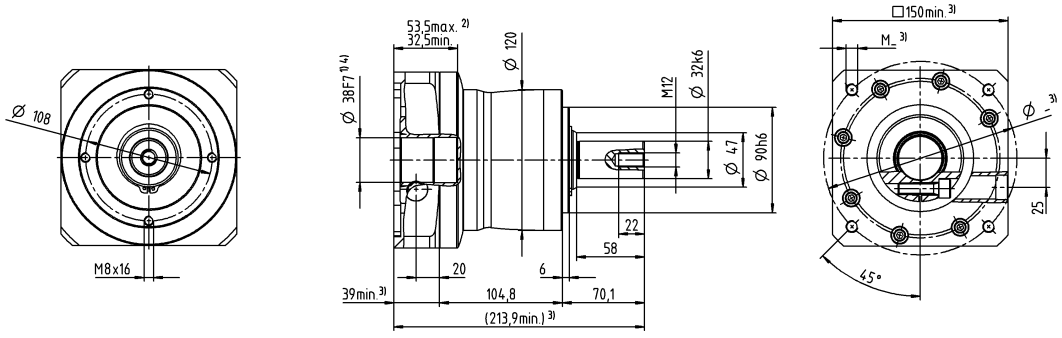
1-stage

Motor shaft diameter [mm]

up to 24/28 [4] (G [5]/H) clamping hub diameter

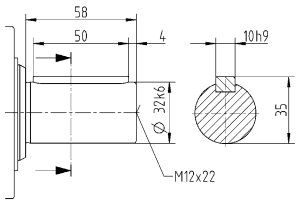


up to 38 [4] (K) clamping hub diameter



Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NP 035 MF 2-stage

				2-stage														
Ratio		**i**		**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*	320	320	320	408	408	400	408	320	408	400	408	400	352	400	352
			in.lb	2832	2832	2832	3611	3611	3540	3611	2832	3611	3540	3611	3540	3115	3540	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	200	200	200	255	255	250	255	200	255	250	255	250	220	250	220
			in.lb	1770	1770	1770	2257	2257	2213	2257	1770	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
			in.lb	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)		n_{1N}	*rpm*	3100	3300	3400	3300	3400	3400	3600	3900	3700	3600	3900	3900	3700	3900	3900
Max. input speed		n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	0.45	0.36	0.3	0.32	0.27	0.25	0.22	0.19	0.2	0.2	0.18	0.17	0.17	0.16	0.15
			in.lb	4	3.2	2.7	2.8	2.4	2.2	1.9	1.7	1.8	1.8	1.6	1.5	1.5	1.4	1.3
Max. backlash		j_t	*arcmin*	≤ 10														
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	22	22	22	25	25	25	25	22	25	25	25	25	22	25	22
			in.lb/arcmin	195	195	195	221	221	221	221	195	221	221	221	221	195	221	195
Max. axial force [c)]		F_{2AMax}	*N*	4000														
			lb_f	900														
Max. lateral force [c)]		F_{2QMax}	*N*	5000														
			lb_f	1125														
Max. tilting moment		M_{2KMax}	*Nm*	345														
			in.lb	3054														
Efficiency at full load		η	*%*	95														
Service life		L_h	*h*	> 20000														
Weight (incl. standard adapter plate)		m	*kg*	9.8														
			lb_m	22														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*	≤ 61														
Max. permitted housing temperature			*°C*	+90														
			°F	+194														
Ambient temperature			*°C*	–15 to +40														
			°F	+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 64														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0150BA032.000-X														
Bore diameter of coupling on the application side			*mm*	X = 019.000 - 036.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.61	0.6	0.6	0.43	0.42	0.36	0.37	0.52	0.38	0.32	0.36	0.31	0.26	0.27	0.24
				10^{-3} in.lb.s²	0.54	0.53	0.53	0.38	0.37	0.32	0.33	0.46	0.34	0.28	0.32	0.27	0.23	0.24	0.21
	D	16	J_1	*kgcm²*	0.76	0.75	0.75	0.58	0.57	0.5	0.5	0.67	0.52	0.45	0.51	0.46	0.4	0.41	0.39
				10^{-3} in.lb.s²	0.67	0.66	0.66	0.51	0.5	0.44	0.44	0.59	0.46	0.4	0.45	0.41	0.35	0.36	0.35
	E	19	J_1	*kgcm²*	0.85	0.83	0.83	0.67	0.66	0.59	0.6	0.75	0.61	0.55	0.6	0.54	0.49	0.5	0.48
				10^{-3} in.lb.s²	0.75	0.73	0.73	0.59	0.58	0.52	0.53	0.66	0.54	0.49	0.53	0.48	0.43	0.44	0.42
	G	24	J_1	*kgcm²*	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.5	1.5	1.5
				10^{-3} in.lb.s²	1.7	1.7	1.7	1.5	1.5	1.4	1.4	1.6	1.4	1.4	1.4	1.4	1.3	1.3	1.3
	H	28	J_1	*kgcm²*	1.6	1.6	1.6	1.4	1.4	1.3	1.3	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2
				10^{-3} in.lb.s²	1.4	1.4	1.4	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1

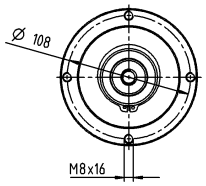
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

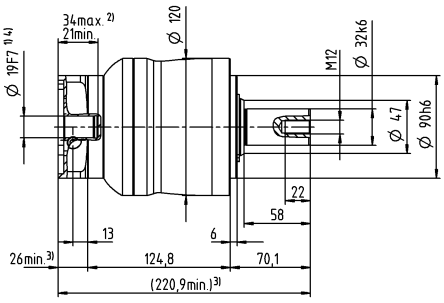
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

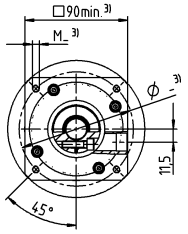
2-stage

Motor shaft diameter [mm]

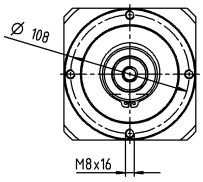
up to 19 [4] (E) [5] clamping hub diameter

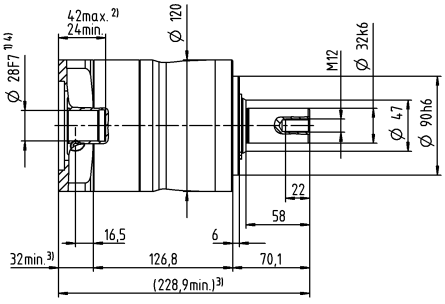


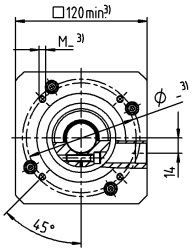




up to 28 [4] (H) clamping hub diameter

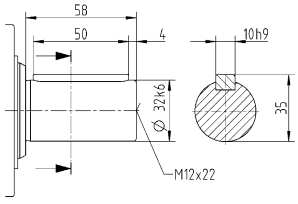






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NP 045 MF 1-/2-stage

					1-stage			2-stage				
Ratio			**i**		**5**	**8**	**10**	**25**	**32**	**50**	**64**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	800	640	640	700	640	700	640	640
				in.lb	7081	5665	5665	6196	5665	6196	5665	5665
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	500	400	400	500	400	500	400	400
				in.lb	4425	3540	3540	4425	3540	4425	3540	3540
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1000	1000	1000	1000	1000	1000	1000	1000
				in.lb	8851	8851	8851	8851	8851	8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2300	2600	2500	3000	2900	3000
Max. input speed			n_{1Max}	*rpm*	4000	4000	4000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	2.4	2	1.9	0.8	0.68	0.6	0.6	0.55
				in.lb	21	18	17	7.1	6	5.3	5.3	4.9
Max. backlash			j_t	*arcmin*	≤ 8			≤ 10				
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	55	44	44	55	55	55	44	44
				in.lb/arcmin	487	389	389	487	487	487	389	389
Max. axial force [c)]			F_{2AMax}	*N*	6000			6000				
				lb_f	1350			1350				
Max. lateral force [c)]			F_{2QMax}	*N*	8000			8000				
				lb_f	1800			1800				
Max. tilting moment			M_{2KMax}	*Nm*	704			704				
				in.lb	6231			6231				
Efficiency at full load			η	%	97			95				
Service life			L_h	*h*	> 20000			> 20000				
Weight (incl. standard adapter plate)			*m*	*kg*	19			20				
				lb_m	42			44				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 68			≤ 65				
Max. permitted housing temperature				*°C*	+90			+90				
				°F	+194			+194				
Ambient temperature				*°C*	–15 to +40			–15 to +40				
				°F	+5 to +104			+5 to +104				
Lubrication					Lubricated for life							
Direction of rotation					In- and output same direction							
Protection class					IP 64							
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0300BA040.000-X							
Bore diameter of coupling on the application side				*mm*	X = 020.000 - 045.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	–	–	–	1.2	1.1	1.1	0.88	0.82
				10^{-3} in.lb.s²	–	–	–	1.1	0.97	0.97	0.78	0.73
	G	24	J_1	*kgcm²*	–	–	–	2	1.9	1.8	1.7	1.6
				10^{-3} in.lb.s²	–	–	–	1.8	1.7	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	–	–	–	1.7	1.6	1.5	1.4	1.3
				10^{-3} in.lb.s²	–	–	–	1.5	1.4	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	–	–	–	5.8	5.7	5.6	5.4	5.4
				10^{-3} in.lb.s²	–	–	–	5.1	5	5	4.8	4.8
	K	38	J_1	*kgcm²*	8.8	7.4	7.2	7	6.9	6.8	6.6	6.5
				10^{-3} in.lb.s²	7.8	6.5	6.4	6.2	6.1	6	5.8	5.8

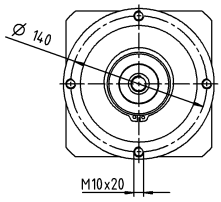
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

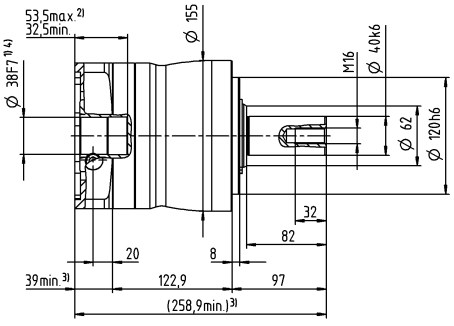
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

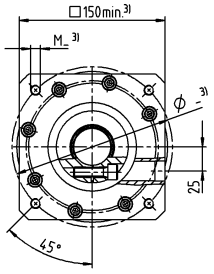
Motor shaft diameter [mm]

1-stage

up to 38 [4] (K) [5] clamping hub diameter

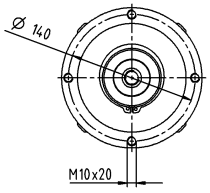


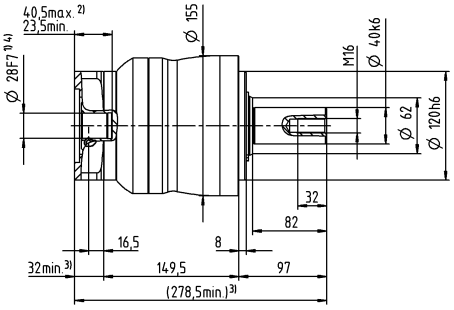


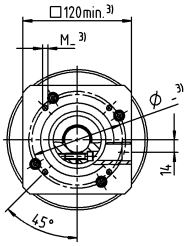


2-stage

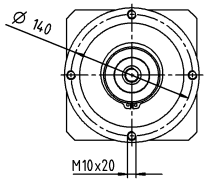
up to 28 [4] (H) [5] clamping hub diameter

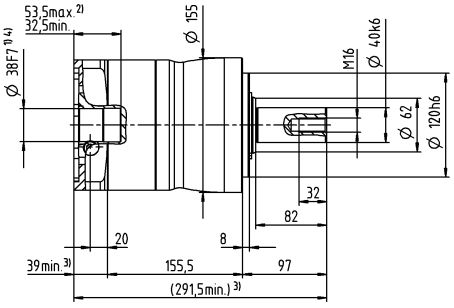


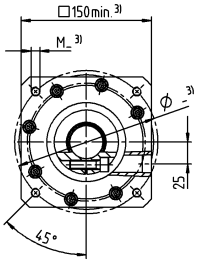




up to 38 [4] (K) clamping hub diameter

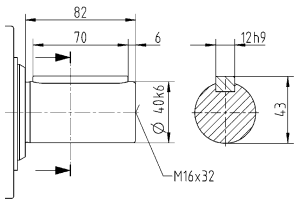






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				1-stage		2-stage						
Ratio	**i**			**3**	**4**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]	T_{2a}		*Nm*	80	67	62	67	67	67	67	62	67
			in.lb	708	593	549	593	593	593	593	549	593
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}		*Nm*	55	42	39	42	42	42	42	39	42
			in.lb	487	372	345	372	372	372	372	345	372
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}		*Nm*	80	80	80	80	80	80	80	80	80
			in.lb	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}		*rpm*	3300	3500	3800	4000	3800	4000	4300	4600	4600
Max. input speed	n_{1Max}		*rpm*	8000	8000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}		*Nm*	0.24	0.2	0.13	0.11	0.12	0.11	0.09	0.09	0.08
			in.lb	2.1	1.8	1.2	0.97	1.1	0.97	0.8	0.8	0.71
Max. backlash	j_t		*arcmin*	≤ 8		≤ 10						
Torsional rigidity [b)]	C_{t21}		*Nm/arcmin*	4	4	4	4	4	4	4	4	4
			in.lb/arcmin	35	35	35	35	35	35	35	35	35
Max. axial force [c)]	F_{2AMax}		*N*	1550		1550						
			lb_f	349		349						
Max. lateral force [c)]	F_{2QMax}		*N*	1700		1700						
			lb_f	383		383						
Max. tilting moment	M_{2KMax}		*Nm*	72		72						
			in.lb	637		637						
Efficiency at full load	η		%	97		95						
Service life	L_h		*h*	> 20000		> 20000						
Weight (incl. standard adapter plate)	*m*		*kg*	1.9		1.9						
			lb_m	4.2		4.2						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}		*dB(A)*	≤ 59		≤ 58						
Max. permitted housing temperature			*°C*	+90		+90						
			°F	+194		+194						
Ambient temperature			*°C*	–15 to +40		–15 to +40						
			°F	+5 to +104		+5 to +104						
Lubrication				Lubricated for life								
Direction of rotation				In- and output same direction								
Protection class				IP 64								
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X								
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} in.lb.s²	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	A	9	J_1	*kgcm²*	0.22	0.18	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} in.lb.s²	0.19	0.16	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	B	11	J_1	*kgcm²*	0.24	0.19	0.06	0.05	0.05	0.05	0.05	0.05	0.05
				10^{-3} in.lb.s²	0.21	0.17	0.05	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.32	0.27	0.14	0.14	0.14	0.13	0.13	0.14	0.13
				10^{-3} in.lb.s²	0.28	0.24	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	D	16	J_1	*kgcm²*	0.45	0.4	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	0.4	0.35	–	–	–	–	–	–	–
	E	19	J_1	*kgcm²*	0.53	0.48	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	0.47	0.42	–	–	–	–	–	–	–

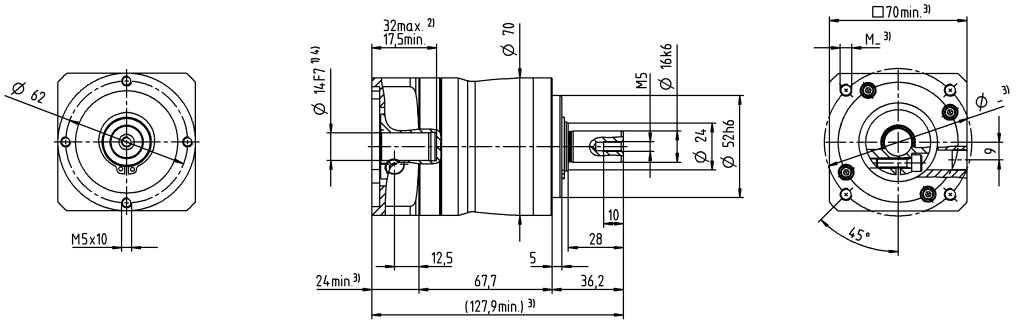
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

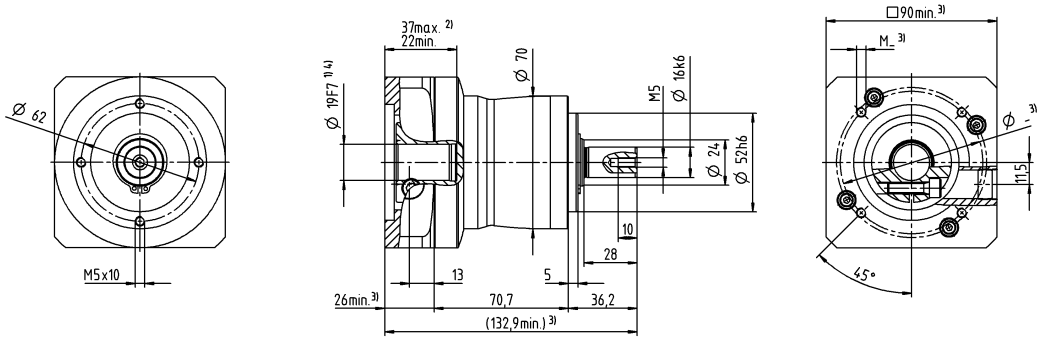
Motor shaft diameter [mm]

1-stage

up to 14 [4] (C) [5] clamping hub diameter

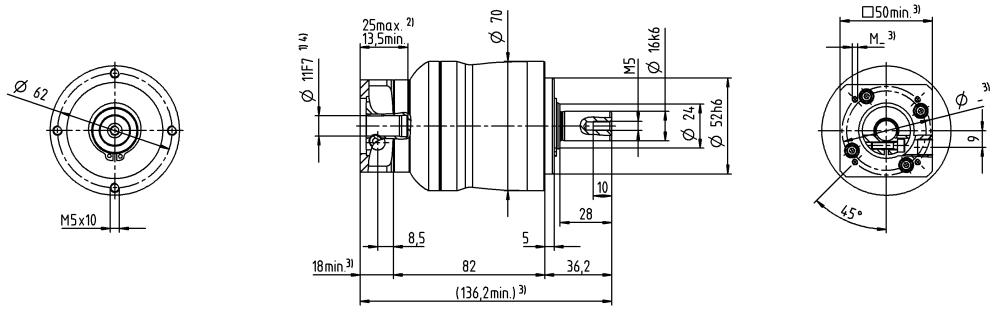


up to 19 [4] (E) clamping hub diameter

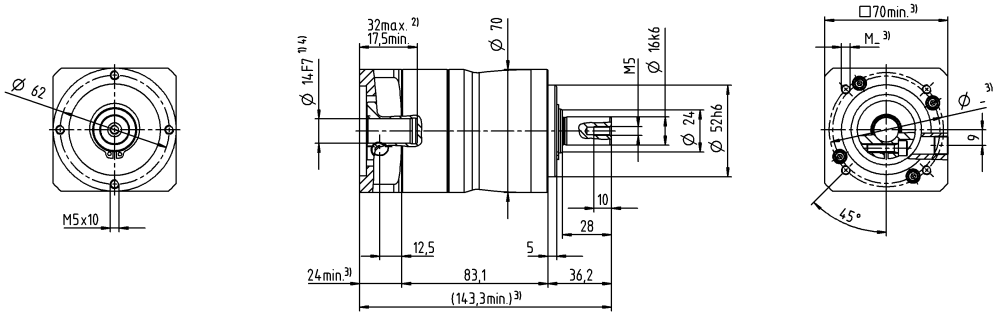


2-stage

up to 11 [4] (B) [5] clamping hub diameter

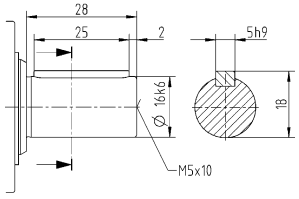


up to 14 [4] (C) clamping hub diameter



Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NP 025 MA 1-/2-stage

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	185	185	185	185	185	185	185	185	168	185
				in.lb	1637	1637	1637	1637	1637	1637	1637	1637	1487	1637
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	125	115	125	125	120	115	115	115	105	115
				in.lb	1106	1018	1106	1106	1062	1018	1018	1018	929	1018
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3100	3300	3300	3500	3700	3500	3700	4000	4300	4300
Max. input speed			n_{1Max}	*rpm*	7000	7000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.38	0.31	0.22	0.18	0.16	0.16	0.15	0.12	0.12	0.11
				in.lb	3.4	2.7	1.9	1.6	1.4	1.4	1.3	1.1	1.1	0.97
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	12	12	12	12	12	12	12	10	12	12
				in.lb/arcmin	106	106	106	106	106	106	106	89	106	106
Max. axial force [c)]			F_{2AMax}	*N*	1900		1900							
				lb_f	428		428							
Max. lateral force [c)]			F_{2QMax}	*N*	2800		2800							
				lb_f	630		630							
Max. tilting moment			M_{2KMax}	*Nm*	137		137							
				in.lb	1213		1213							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	3.8		4.1							
				lb_m	8.4		9.1							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61		≤ 59							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 64									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X									
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	–	–	0.26	0.22	0.21	0.21	0.2	0.19	0.19	0.19
				10^{-3} in.lb.s²	–	–	0.23	0.19	0.19	0.19	0.18	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	–	–	0.28	0.24	0.23	0.23	0.22	0.21	0.21	0.21
				10^{-3} in.lb.s²	–	–	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.57	0.46	0.35	0.31	0.3	0.3	0.3	0.29	0.28	0.28
				10^{-3} in.lb.s²	0.5	0.41	0.31	0.27	0.27	0.27	0.27	0.26	0.25	0.25
	D	16	J_1	*kgcm²*	0.71	0.61	0.48	0.44	0.43	0.43	0.42	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.63	0.54	0.42	0.39	0.38	0.38	0.37	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.8	0.7	0.56	0.52	0.51	0.51	0.51	0.5	0.5	0.49
				10^{-3} in.lb.s²	0.71	0.62	0.5	0.46	0.45	0.45	0.45	0.44	0.44	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.6	1.5	–	–	–	–	–	–	–	–
	H	28	J_1	*kgcm²*	1.5	1.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.3	1.2	–	–	–	–	–	–	–	–

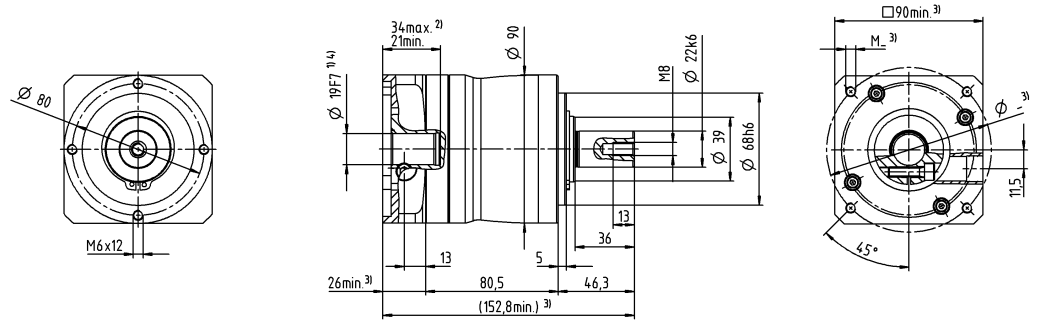
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

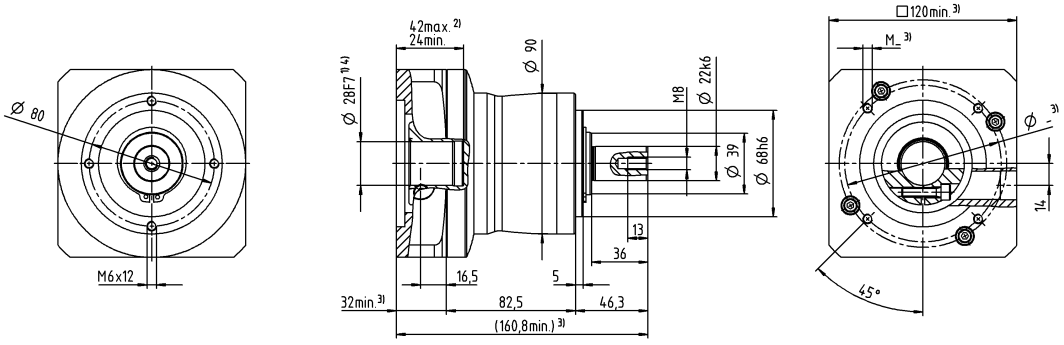
Motor shaft diameter [mm]

1-stage

up to 19 [4] (E) [5] clamping hub diameter

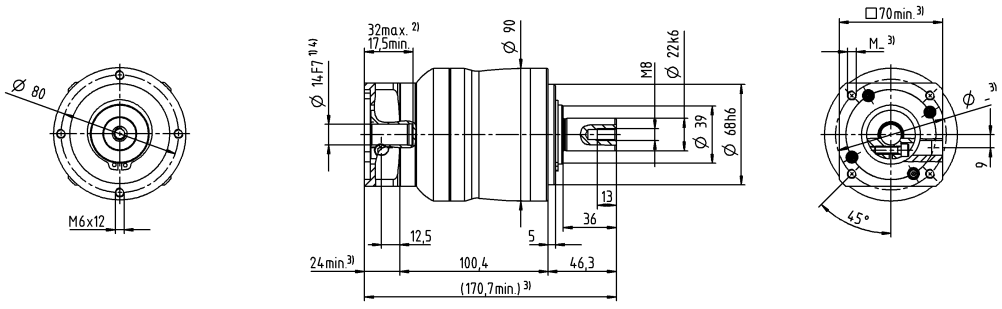


up to 28 [4] (H) clamping hub diameter

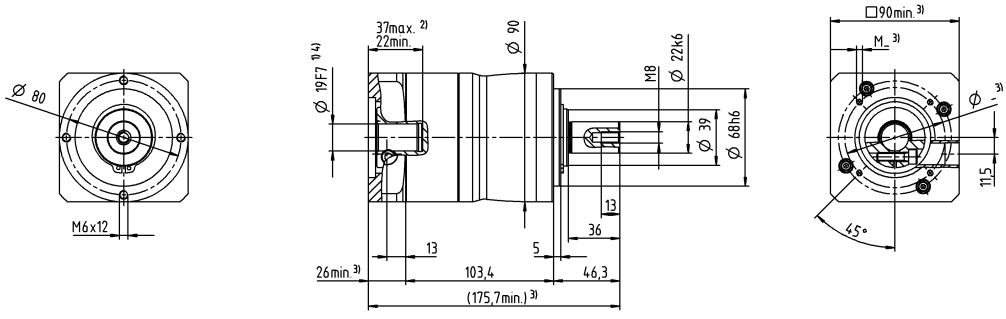


2-stage

up to 14 [4] (C) [5] clamping hub diameter

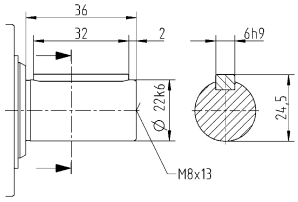


up to 19 [4] (E) clamping hub diameter



Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NP 035 MA 1-/2-stage

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	480	480	480	480	480	480	480	480	432	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3824	4248
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	305	305	305	305	300	305	305	305	270	305
				in.lb	2699	2699	2699	2699	2655	2699	2699	2699	2390	2699
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2300	2500	3100	3300	3400	3300	3400	3600	3900	3900
Max. input speed			n_{1Max}	*rpm*	6000	6000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1	0.85	0.45	0.36	0.3	0.32	0.27	0.22	0.19	0.18
				in.lb	8.9	7.5	4	3.2	2.7	2.8	2.4	1.9	1.7	1.6
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	30	30	30	30	30	30	30	30	30	30
				in.lb/arcmin	266	266	266	266	266	266	266	266	266	266
Max. axial force [c)]			F_{2AMax}	*N*	4000		4000							
				lb_f	900		900							
Max. lateral force [c)]			F_{2QMax}	*N*	5000		5000							
				lb_f	1125		1125							
Max. tilting moment			M_{2KMax}	*Nm*	345		345							
				in.lb	3054		3054							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	9.4		9.8							
				lb_m	21		22							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65		≤ 61							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 64									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X									
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	–	–	0.61	0.6	0.6	0.43	0.42	0.37	0.52	0.36
				10^{-3} in.lb.s²	–	–	0.54	0.53	0.53	0.38	0.37	0.33	0.46	0.32
	D	16	J_1	*kgcm²*	–	–	0.76	0.75	0.75	0.58	0.57	0.5	0.67	0.51
				10^{-3} in.lb.s²	–	–	0.67	0.66	0.66	0.51	0.5	0.44	0.59	0.45
	E	19	J_1	*kgcm²*	2.6	1.7	0.85	0.83	0.83	0.67	0.66	0.6	0.75	0.6
				10^{-3} in.lb.s²	2.3	1.5	0.75	0.73	0.73	0.59	0.58	0.53	0.66	0.53
	G	24	J_1	*kgcm²*	3.4	2.5	1.9	1.9	1.9	1.7	1.7	1.6	1.8	1.6
				10^{-3} in.lb.s²	3	2.2	1.7	1.7	1.7	1.5	1.5	1.4	1.6	1.4
	H	28	J_1	*kgcm²*	3.1	2.2	1.6	1.6	1.6	1.4	1.4	1.3	0.5	1.3
				10^{-3} in.lb.s²	2.7	1.9	1.4	1.4	1.4	1.2	1.2	1.2	0.44	1.2
	I	32	J_1	*kgcm²*	7.2	6.3	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	6.4	5.6	–	–	–	–	–	–	–	–
	K	38	J_1	*kgcm²*	8.3	7.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	7.3	6.5	–	–	–	–	–	–	–	–

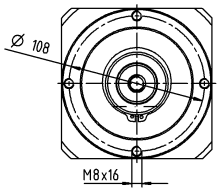
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

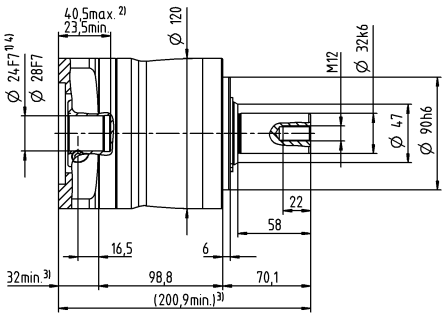
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

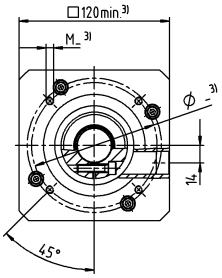
Motor shaft diameter [mm]

1-stage

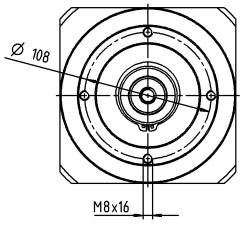
up to 24/28 [4] (G [5]/H) clamping hub diameter

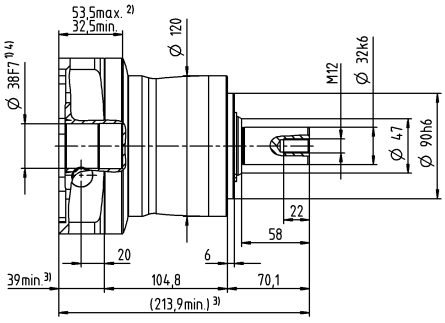


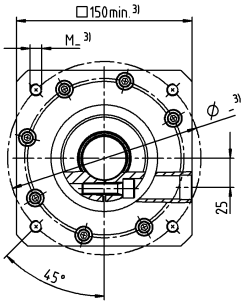




up to 38 [4] (K) clamping hub diameter

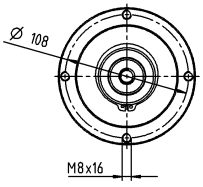


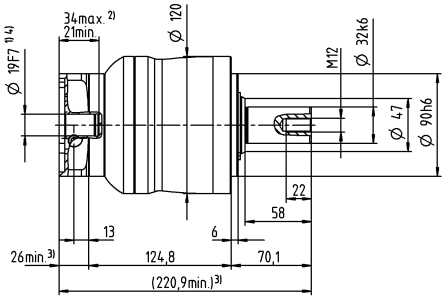


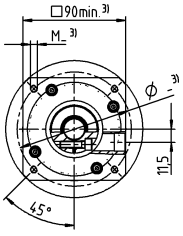


2-stage

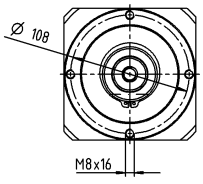
up to 19 [4] (E) [5] clamping hub diameter

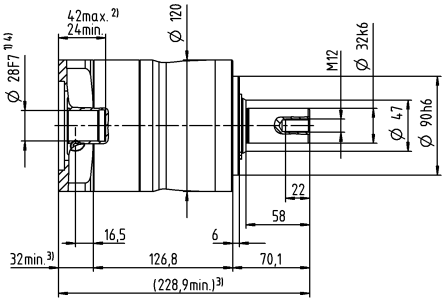


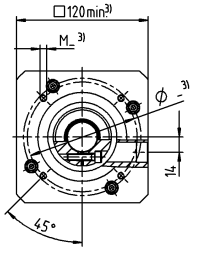




up to 28 [4] (H) clamping hub diameter

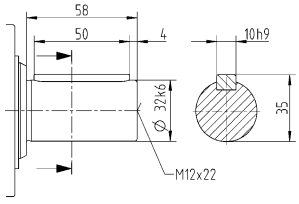






Other output variants

Shaft with key



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	51	56	64	64	56	56
				in.lb	451	496	566	566	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	32	35	40	40	35	35
				in.lb	283	310	354	354	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	80	80	80	80	80	80
				in.lb	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2900	3100	3300	3600	3600	3800
Max. input speed			n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.92	0.74	0.62	0.51	0.47	0.41
				in.lb	8.1	6.5	5.5	4.5	4.2	3.6
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.3	3.3	3.3	3.3	2.8	2.8
				in.lb/arcmin	29	29	29	29	25	25
Max. axial force [c)]			F_{2AMax}	*N*	2400					
				lb_f	540					
Max. lateral force [c)]			F_{2QMax}	*N*	2800					
				lb_f	630					
Max. tilting moment			M_{2KMax}	*Nm*	152					
				in.lb	1345					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	1.9					
				lb_m	4.2					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 59					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA016.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.25	0.19	0.17	0.14	0.14	0.13
				10^{-3} *in.lb.s²*	0.22	0.17	0.15	0.12	0.12	0.12
	B	11	J_1	*kgcm²*	0.26	0.21	0.18	0.16	0.16	0.15
				10^{-3} *in.lb.s²*	0.23	0.19	0.16	0.14	0.14	0.13
	C	14	J_1	*kgcm²*	0.34	0.28	0.26	0.24	0.23	0.23
				10^{-3} *in.lb.s²*	0.3	0.25	0.23	0.21	0.2	0.2
	D	16	J_1	*kgcm²*	0.47	0.41	0.39	0.36	0.36	0.35
				10^{-3} *in.lb.s²*	0.42	0.36	0.35	0.32	0.32	0.31
	E	19	J_1	*kgcm²*	0.55	0.49	0.47	0.45	0.44	0.44
				10^{-3} *in.lb.s²*	0.49	0.43	0.42	0.4	0.39	0.39

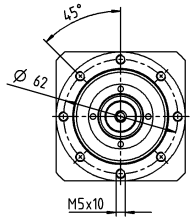
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

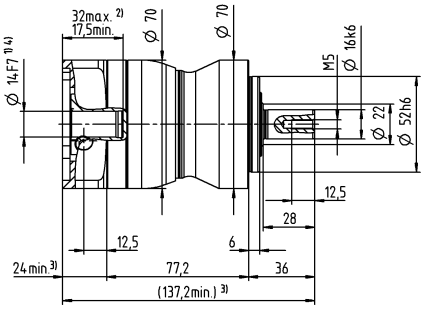
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

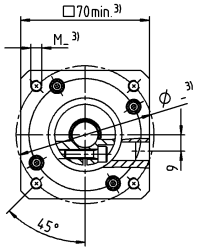
1-stage

Motor shaft diameter [mm]

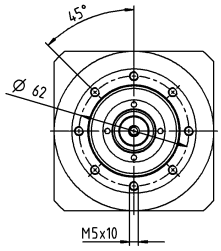
up to 14 [4] (C) [5] clamping hub diameter

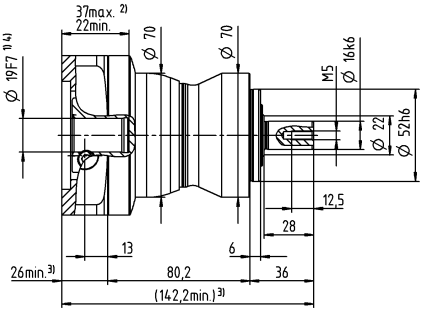


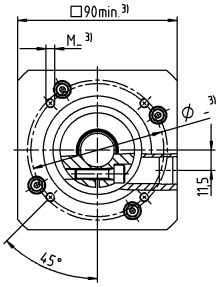




up to 19 [4] (E) clamping hub diameter

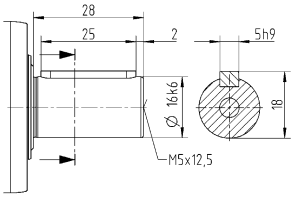




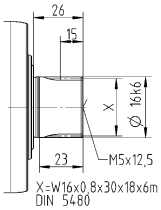


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NPL 015 MF 2-stage

				2-stage													
Ratio	**i**			**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		51	51	56	56	64	56	51	56	64	56	64	56	64	56
		in.lb		451	451	496	496	566	496	451	496	566	496	566	496	566	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		32	32	35	35	40	35	32	35	40	35	40	35	40	35
		in.lb		283	283	310	310	354	310	283	310	354	310	354	310	354	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3800	4000	3800	4000	4000	4300	4600	4400	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.34	0.29	0.29	0.25	0.23	0.21	0.21	0.2	0.2	0.19	0.17	0.17	0.16	0.15
		in.lb		3	2.6	2.6	2.2	2	1.9	1.9	1.8	1.8	1.7	1.5	1.5	1.4	1.3
Max. backlash	j_t	*arcmin*		≤ 10													
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	3.3	2.8
		in.lb/arcmin		29	29	29	29	29	29	29	29	29	29	29	25	29	25
Max. axial force [c)]	F_{2AMax}	*N*		2400													
		lb_f		540													
Max. lateral force [c)]	F_{2QMax}	*N*		2800													
		lb_f		630													
Max. tilting moment	M_{2KMax}	*Nm*		152													
		in.lb		1345													
Efficiency at full load	η	*%*		95													
Service life	L_h	*h*		> 20000													
Weight (incl. standard adapter plate)	*m*	*kg*		2													
		lb_m		4.4													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58													
Max. permitted housing temperature		*°C*		+90													
		°F		+194													
Ambient temperature		*°C*		–15 to +40													
		°F		+5 to +104													
Lubrication				Lubricated for life													
Direction of rotation				In- and output same direction													
Protection class				IP 65													
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X													
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

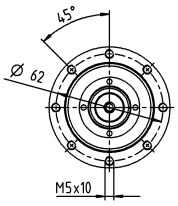
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

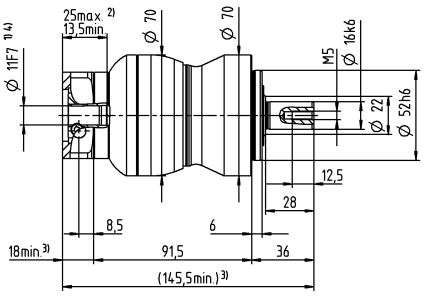
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

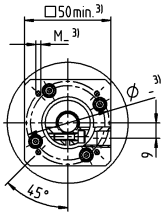
2-stage

Motor shaft diameter [mm]

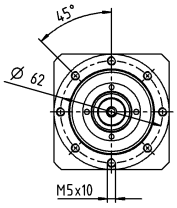
up to 11 [4] (B) [5] clamping hub diameter

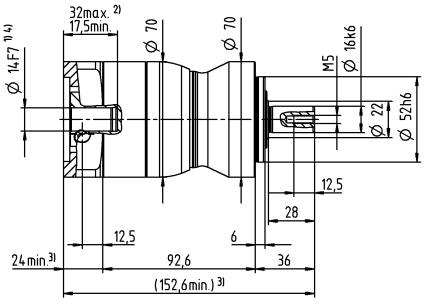


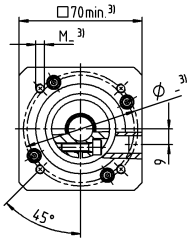




up to 14 [4] (C) clamping hub diameter

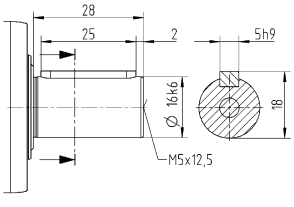




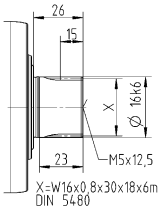


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	128	152	160	160	144	144
				in.lb	1133	1345	1416	1416	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	80	95	100	100	90	90
				in.lb	708	841	885	885	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2700	2900	3000	3200	3300	3500
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.8	1.5	1.3	1.1	1	0.94
				in.lb	16	13	12	9.7	8.9	8.3
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	9.5	9.5	9.5	9.5	8.5	8.5
				in.lb/arcmin	84	84	84	84	75	75
Max. axial force [c)]			F_{2AMax}	*N*	3350					
				lb_f	754					
Max. lateral force [c)]			F_{2QMax}	*N*	4200					
				lb_f	945					
Max. tilting moment			M_{2KMax}	*Nm*	236					
				in.lb	2089					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	3.9					
				lb_m	8.6					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.58	0.47	0.38	0.3	0.28	0.26
				10^{-3} in.lb.s²	0.51	0.42	0.34	0.27	0.25	0.23
	D	16	J_1	*kgcm²*	0.73	0.62	0.53	0.43	0.42	0.4
				10^{-3} in.lb.s²	0.65	0.55	0.47	0.38	0.37	0.35
	E	19	J_1	*kgcm²*	0.81	0.71	0.61	0.53	0.51	0.49
				10^{-3} in.lb.s²	0.72	0.63	0.54	0.47	0.45	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	1.6	1.6	1.5	1.5
				10^{-3} in.lb.s²	1.6	1.5	1.4	1.4	1.3	1.3
	H	28	J_1	*kgcm²*	1.6	1.4	1.4	1.3	1.3	1.2
				10^{-3} in.lb.s²	1.4	1.2	1.2	1.2	1.2	1.1

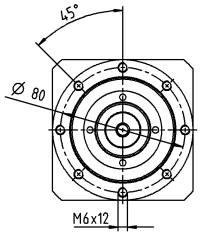
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

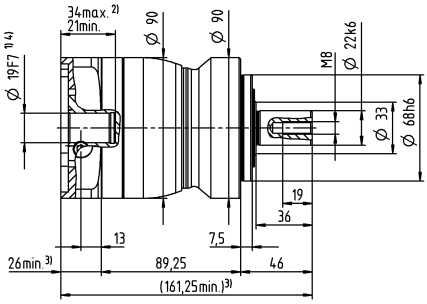
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

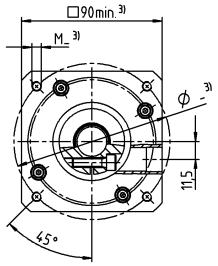
1-stage

Motor shaft diameter [mm]

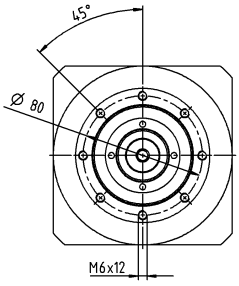
up to 19 [4] (E) [5] clamping hub diameter

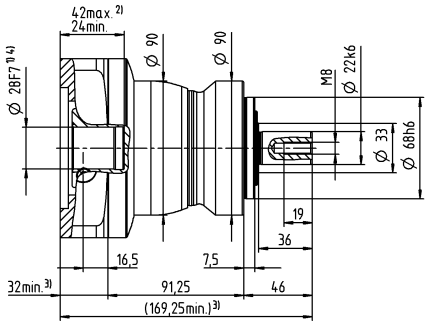


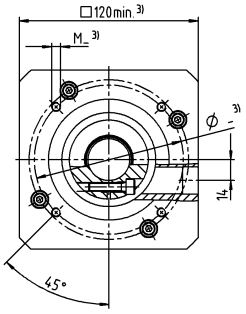




up to 28 [4] (H) clamping hub diameter

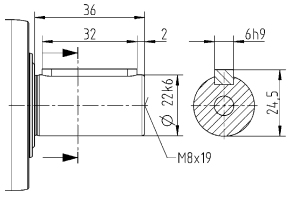




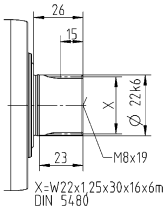


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					2-stage														
Ratio		**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*		128	128	128	152	152	160	152	128	144	160	152	160	144	160	144
			in.lb		1133	1133	1133	1345	1345	1416	1345	1133	1275	1416	1345	1416	1275	1416	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*		80	80	80	95	95	100	95	80	90	100	95	100	90	100	90
			in.lb		708	708	708	841	841	885	841	708	797	885	841	885	797	885	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*		190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
			in.lb		1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)		n_{1N}	*rpm*		2900	3500	3700	3500	3700	3700	4000	4300	4100	4000	4300	4300	4100	4300	4300
Max. input speed		n_{1Max}	*rpm*		8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (n_1 = 3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*		0.67	0.55	0.47	0.46	0.4	0.36	0.34	0.33	0.32	0.31	0.29	0.27	0.25	0.25	0.23
			in.lb		5.9	4.9	4.2	4.1	3.5	3.2	3	2.9	2.8	2.7	2.6	2.4	2.2	2.2	2
Max. backlash		j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*		10	10	10	10	10	9.5	10	10	10	9.5	10	9.5	8.5	9.5	8.5
			in.lb/arcmin		89	89	89	89	89	84	89	89	89	84	89	84	75	84	75
Max. axial force [c)]		F_{2AMax}	*N*		3350														
			lb_f		754														
Max. lateral force [c)]		F_{2QMax}	*N*		4200														
			lb_f		945														
Max. tilting moment		M_{2KMax}	*Nm*		236														
			in.lb		2089														
Efficiency at full load		η	*%*		95														
Service life		L_h	*h*		> 20000														
Weight (incl. standard adapter plate)		m	*kg*		4.2														
			lb_m		9.3														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*		≤ 59														
Max. permitted housing temperature			*°C*		+90														
			°F		+194														
Ambient temperature			*°C*		–15 to +40														
			°F		+5 to +104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output same direction														
Protection class					IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X														
Bore diameter of coupling on the application side			*mm*		X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.26	0.22	0.21	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
				10^{-3} in.lb.s²	0.23	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	0.28	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
				10^{-3} in.lb.s²	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.35	0.31	0.3	0.3	0.3	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
				10^{-3} in.lb.s²	0.31	0.27	0.27	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	D	16	J_1	*kgcm²*	0.48	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.42	0.39	0.38	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

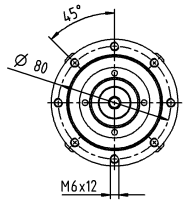
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

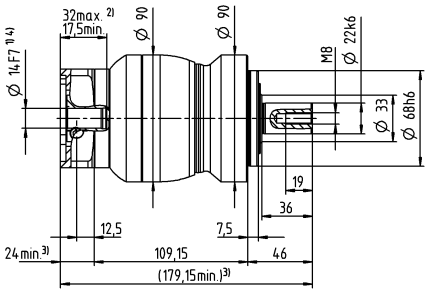
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

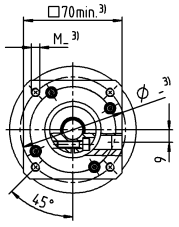
2-stage

Motor shaft diameter [mm]

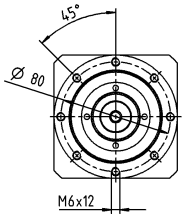
up to 14 [4] (C) [5] clamping hub diameter

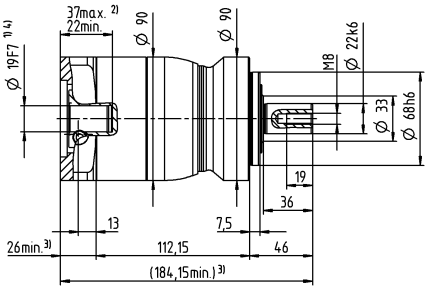


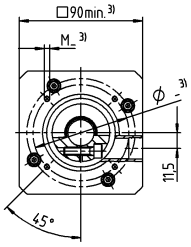




up to 19 [4] (E) clamping hub diameter

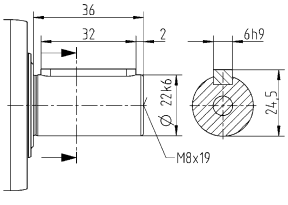




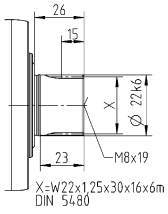


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	320	408	400	400	352	352
				in.lb	2832	3611	3540	3540	3115	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	255	250	250	220	220
				in.lb	1770	2257	2213	2213	1947	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2300	2500	2600	2700
Max. input speed			n_{1Max}	*rpm*	6000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.3	2.7	2.3	1.9	1.7	1.5
				in.lb	29	24	20	17	15	13
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	25	25	25	25	22	22
				in.lb/arcmin	221	221	221	221	195	195
Max. axial force [c)]			F_{2AMax}	*N*	5650					
				lb_f	1271					
Max. lateral force [c)]			F_{2QMax}	*N*	6600					
				lb_f	1485					
Max. tilting moment			M_{2KMax}	*Nm*	487					
				in.lb	4310					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	9.1					
				lb_m	20					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X					
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	2.5	1.7	1.3	1	0.94	0.87
				10^{-3} in.lb.s²	2.2	1.5	1.2	0.89	0.83	0.77
	G	24	J_1	*kgcm²*	3.3	2.4	2.1	1.8	1.7	1.6
				10^{-3} in.lb.s²	2.9	2.1	1.9	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.8	1.5	1.4	1.4
				10^{-3} in.lb.s²	2.7	1.9	1.6	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	5.9	5.6	5.5	5.4
				10^{-3} in.lb.s²	6.3	5.5	5.2	5	4.9	4.8
	K	38	J_1	*kgcm²*	8.3	7.4	7.1	6.7	6.6	6.6
				10^{-3} in.lb.s²	7.3	6.5	6.3	5.9	5.8	5.8

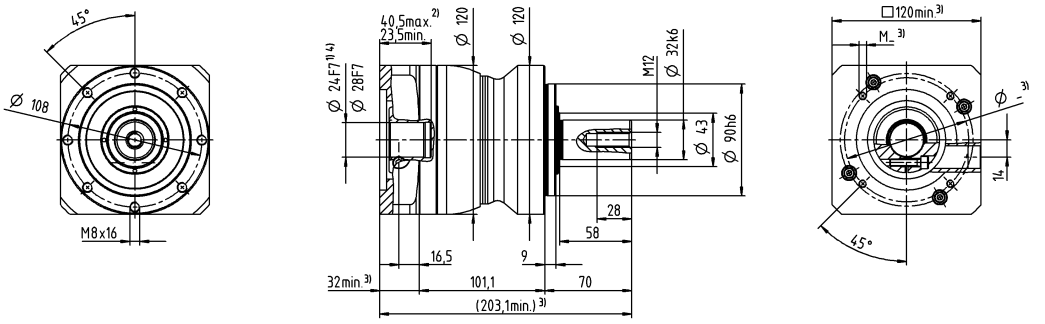
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

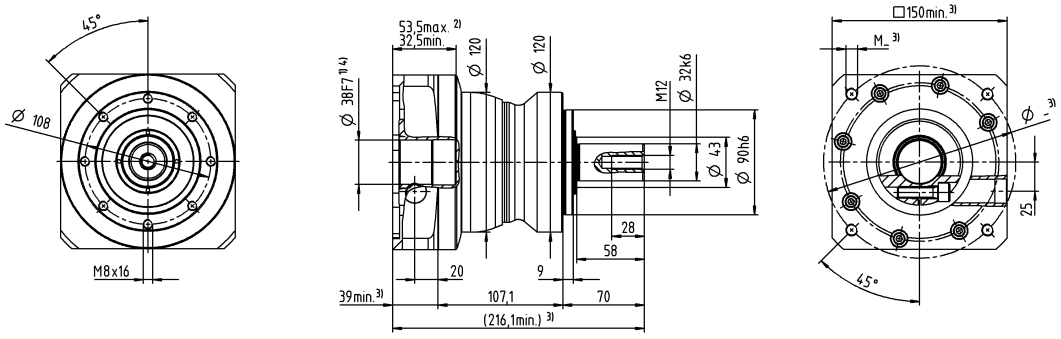
1-stage

Motor shaft diameter [mm]

up to 24/28 [4] (G [5]/H) clamping hub diameter

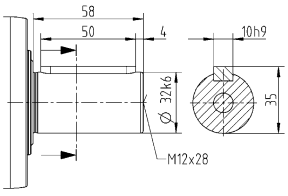


up to 38 [4] (K) clamping hub diameter

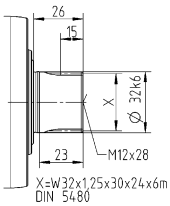


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage														
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		320	320	320	408	408	400	408	320	408	400	408	400	352	400	352
		in.lb		2832	2832	2832	3611	3611	3540	3611	2832	3611	3540	3611	3540	3115	3540	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		200	200	200	255	255	250	255	200	255	250	255	250	220	250	220
		in.lb		1770	1770	1770	2257	2257	2213	2257	1770	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
		in.lb		4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2700	3300	3400	3300	3400	3400	3600	3900	3700	3600	3900	3900	3700	3900	3900
Max. input speed	n_{1Max}	*rpm*		7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		1.7	1.4	1.2	1.2	1.1	1	0.93	0.88	0.88	0.87	0.81	0.77	0.75	0.72	0.68
		in.lb		15	12	11	11	9.7	8.9	8.2	7.8	7.8	7.7	7.2	6.8	6.6	6.4	6
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		25	25	25	25	25	25	25	25	25	25	25	25	22	25	22
		in.lb/arcmin		221	221	221	221	221	221	221	221	221	221	221	221	195	221	195
Max. axial force [c)]	F_{2AMax}	*N*		5650														
		lb_f		1271														
Max. lateral force [c)]	F_{2QMax}	*N*		6600														
		lb_f		1485														
Max. tilting moment	M_{2KMax}	*Nm*		487														
		in.lb		4310														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	m	*kg*		9.5														
		lb_m		21														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 61														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0150BA032.000-X														
Bore diameter of coupling on the application side			*mm*	X = 019.000 - 036.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.6	0.59	0.6	0.43	0.42	0.36	0.37	0.52	0.38	0.32	0.36	0.31	0.26	0.27	0.24
				10^{-3} in.lb.s²	0.53	0.52	0.53	0.38	0.37	0.32	0.33	0.46	0.34	0.28	0.32	0.27	0.23	0.24	0.21
	D	16	J_1	*kgcm²*	0.75	0.74	0.74	0.58	0.57	0.5	0.5	0.67	0.52	0.45	0.51	0.46	0.4	0.41	0.39
				10^{-3} in.lb.s²	0.66	0.65	0.65	0.51	0.5	0.44	0.44	0.59	0.46	0.4	0.45	0.41	0.35	0.36	0.35
	E	19	J_1	*kgcm²*	0.84	0.83	0.83	0.66	0.65	0.59	0.6	0.75	0.61	0.55	0.6	0.54	0.49	0.5	0.48
				10^{-3} in.lb.s²	0.74	0.73	0.73	0.58	0.58	0.52	0.53	0.66	0.54	0.49	0.53	0.48	0.43	0.44	0.42
	G	24	J_1	*kgcm²*	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.5	1.5	1.5
				10^{-3} in.lb.s²	1.7	1.6	1.7	1.5	1.5	1.4	1.5	1.6	1.5	1.4	1.4	1.4	1.3	1.4	1.3
	H	28	J_1	*kgcm²*	1.6	1.6	1.6	1.4	1.4	1.3	1.3	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2
				10^{-3} in.lb.s²	1.4	1.4	1.4	1.2	1.2	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1

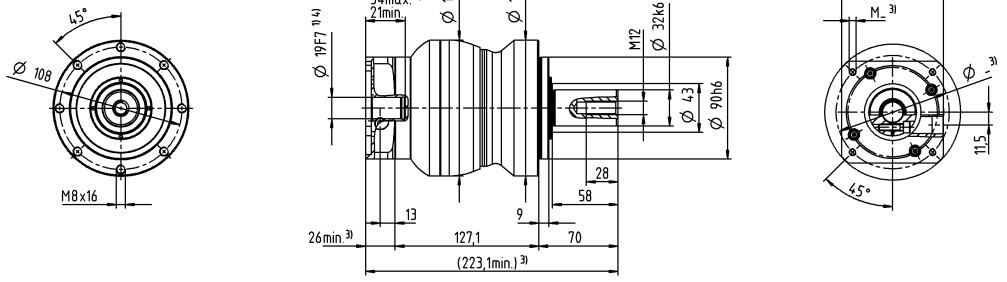
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

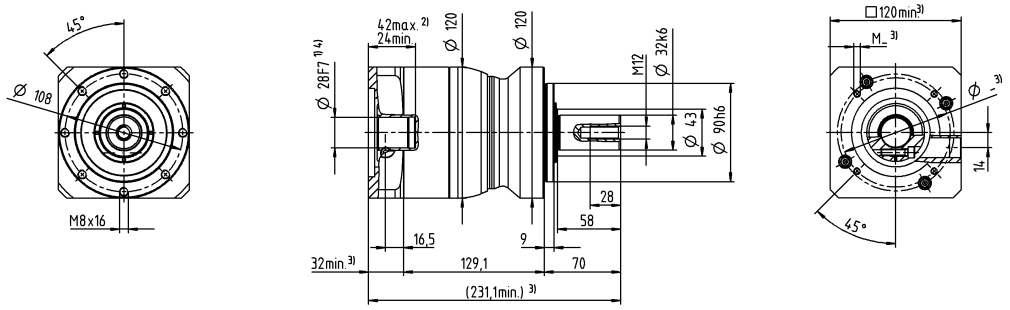
2-stage

Motor shaft diameter [mm]

up to 19 [4] (E) [5] clamping hub diameter

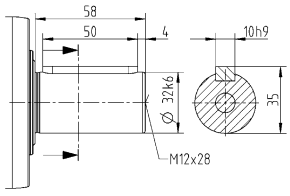


up to 28 [4] (H) clamping hub diameter

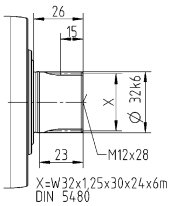


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage			2-stage				
Ratio			**i**		**5**	**8**	**10**	**25**	**32**	**50**	**64**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	800	640	640	700	640	700	640	640
				in.lb	7081	5665	5665	6196	5665	6196	5665	5665
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	500	400	400	500	400	500	400	400
				in.lb	4425	3540	3540	4425	3540	4425	3540	3540
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1000	1000	1000	1000	1000	1000	1000	1000
				in.lb	8851	8851	8851	8851	8851	8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	1800	1900	2000	2600	2500	3000	2900	3000
Max. input speed			n_{1Max}	*rpm*	4000	4000	4000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	4.2	3	2.6	1.6	1.5	1.2	1.1	0.97
				in.lb	37	27	23	14	13	11	9.7	8.6
Max. backlash			j_t	*arcmin*	≤ 8			≤ 10				
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	55	44	44	55	44	55	44	44
				in.lb/arcmin	487	389	389	487	389	487	389	389
Max. axial force [c)]			F_{2AMax}	*N*	9870			9870				
				lb_f	2221			2221				
Max. lateral force [c)]			F_{2QMax}	*N*	9900			9900				
				lb_f	2228			2228				
Max. tilting moment			M_{2KMax}	*Nm*	952			952				
				in.lb	8426			8426				
Efficiency at full load			η	%	97			95				
Service life			L_h	*h*	> 20000			> 20000				
Weight (incl. standard adapter plate)			m	*kg*	20			20				
				lb_m	44			44				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 68			≤ 65				
Max. permitted housing temperature				*°C*	+90			+90				
				°F	+194			+194				
Ambient temperature				*°C*	–15 to +40			–15 to +40				
				°F	+5 to +104			+5 to +104				
Lubrication					Lubricated for life							
Direction of rotation					In- and output same direction							
Protection class					IP 65							
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0300BA040.000-X							
Bore diameter of coupling on the application side				*mm*	X = 020.000 - 045.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	$kgcm^2$	–	–	–	1.2	1.1	1	0.88	0.82
				10^{-3} $in.lb.s^2$	–	–	–	1.1	0.97	0.89	0.78	0.73
	G	24	J_1	$kgcm^2$	–	–	–	2	1.9	1.8	1.7	1.6
				10^{-3} $in.lb.s^2$	–	–	–	1.8	1.7	1.6	1.5	1.4
	H	28	J_1	$kgcm^2$	–	–	–	1.7	1.6	1.5	1.4	1.3
				10^{-3} $in.lb.s^2$	–	–	–	1.5	1.4	1.3	1.2	1.2
	I	32	J_1	$kgcm^2$	–	–	–	5.8	5.7	5.6	5.4	5.4
				10^{-3} $in.lb.s^2$	–	–	–	5.1	5	5	4.8	4.8
	K	38	J_1	$kgcm^2$	8.7	7.3	7.2	7	6.9	6.8	6.6	6.5
				10^{-3} $in.lb.s^2$	7.7	6.5	6.4	6.2	6.1	6	5.8	5.8

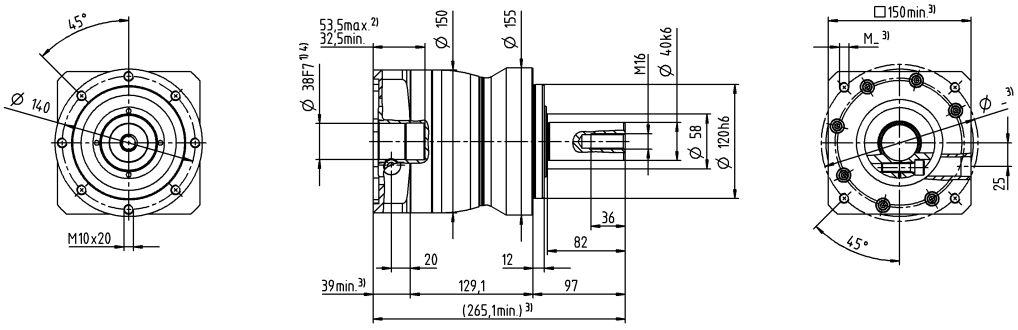
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

Motor shaft diameter [mm]

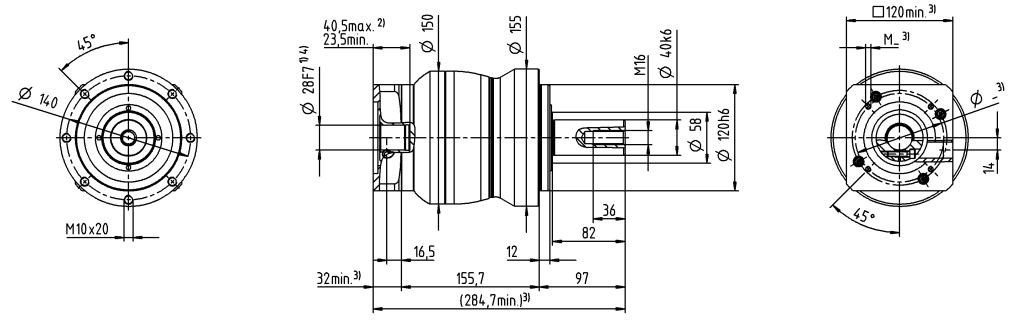
1-stage

up to 38 [4] (K) [5] clamping hub diameter

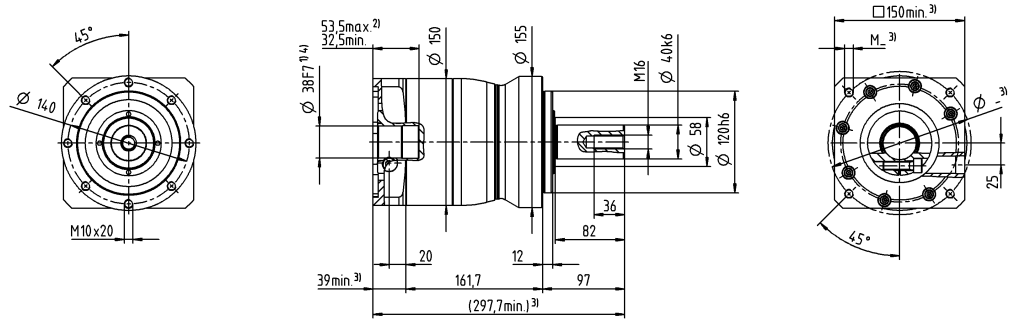


2-stage

up to 28 [4] (H) [5] clamping hub diameter

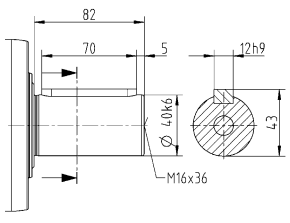


up to 38 [4] (K) clamping hub diameter

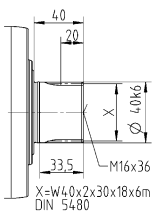


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				1-stage		2-stage						
Ratio	**i**			**3**	**4**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]	T_{2a}	*Nm*		80	67	62	67	67	67	67	62	67
		in.lb		708	593	549	593	593	593	593	549	593
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		55	42	39	42	42	42	42	39	42
		in.lb		487	372	345	372	372	372	372	345	372
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2900	3100	3800	4000	3800	4000	4300	4600	4600
Max. input speed	n_{1Max}	*rpm*		8000	8000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.92	0.74	0.34	0.29	0.29	0.25	0.21	0.21	0.19
		in.lb		8.1	6.5	3	2.6	2.6	2.2	1.9	1.9	1.7
Max. backlash	j_t	*arcmin*		≤ 8		≤ 10						
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		4	4	4	4	4	4	4	4	4
		in.lb/arcmin		35	35	35	35	35	35	35	35	35
Max. axial force [c)]	F_{2AMax}	*N*		2400		2400						
		lb_f		540		540						
Max. lateral force [c)]	F_{2QMax}	*N*		2800		2800						
		lb_f		630		630						
Max. tilting moment	M_{2KMax}	*Nm*		152		152						
		in.lb		1345		1345						
Efficiency at full load	η	%		97		95						
Service life	L_h	*h*		> 20000		> 20000						
Weight (incl. standard adapter plate)	*m*	*kg*		1.9		2						
		lb_m		4.2		4.4						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 59		≤ 58						
Max. permitted housing temperature		*°C*		+90		+90						
		°F		+194		+194						
Ambient temperature		*°C*		–15 to +40		–15 to +40						
		°F		+5 to +104		+5 to +104						
Lubrication				Lubricated for life								
Direction of rotation				In- and output same direction								
Protection class				IP 65								
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X								
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	A	9	J_1	*kgcm²*	0.25	0.19	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	0.22	0.17	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	B	11	J_1	*kgcm²*	0.26	0.21	0.06	0.06	0.05	0.05	0.05	0.05	0.05
				10^{-3} *in.lb.s²*	0.23	0.19	0.05	0.05	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.34	0.28	0.14	0.14	0.14	0.13	0.13	0.14	0.13
				10^{-3} *in.lb.s²*	0.3	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	D	16	J_1	*kgcm²*	0.47	0.41	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.42	0.36	–	–	–	–	–	–	–
	E	19	J_1	*kgcm²*	0.55	0.49	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.49	0.43	–	–	–	–	–	–	–

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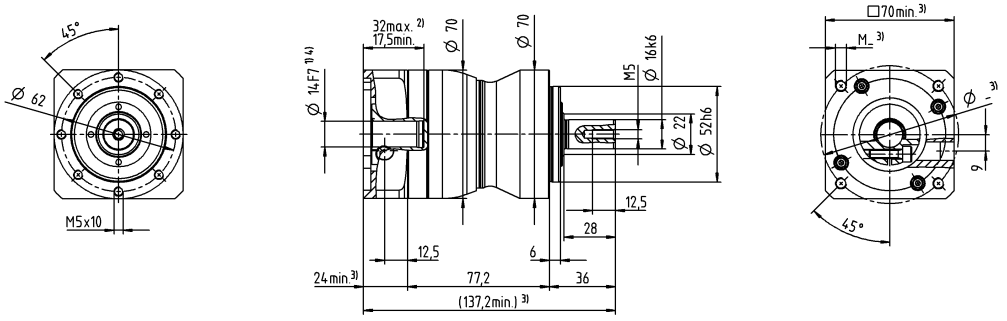
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

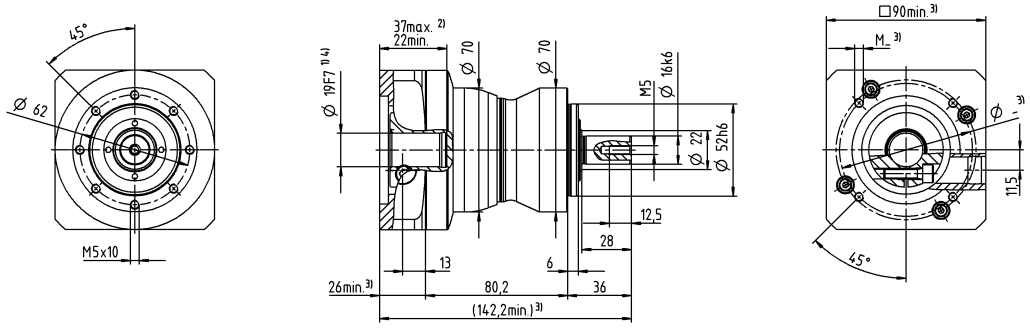
Motor shaft diameter [mm]

1-stage

up to 14 [4] (C) [5] clamping hub diameter

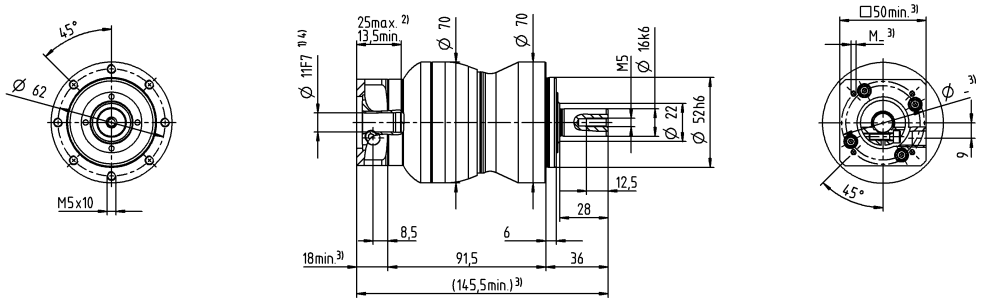


up to 19 [4] (E) clamping hub diameter

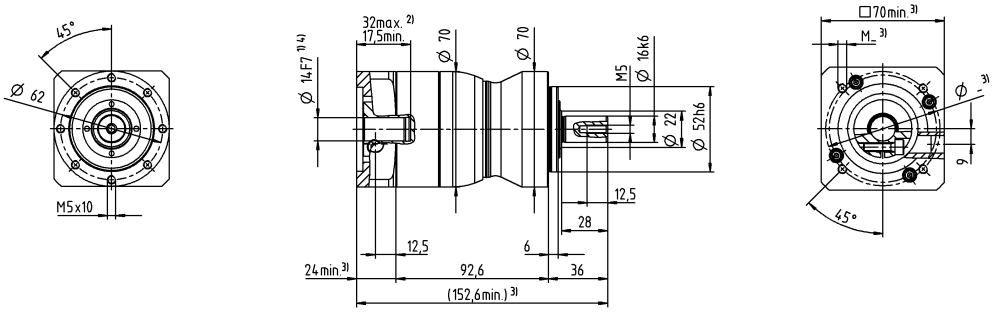


2-stage

up to 11 [4] (B) [5] clamping hub diameter

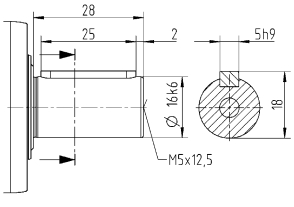


up to 14 [4] (C) clamping hub diameter

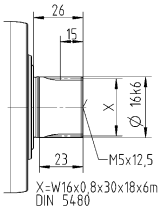


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

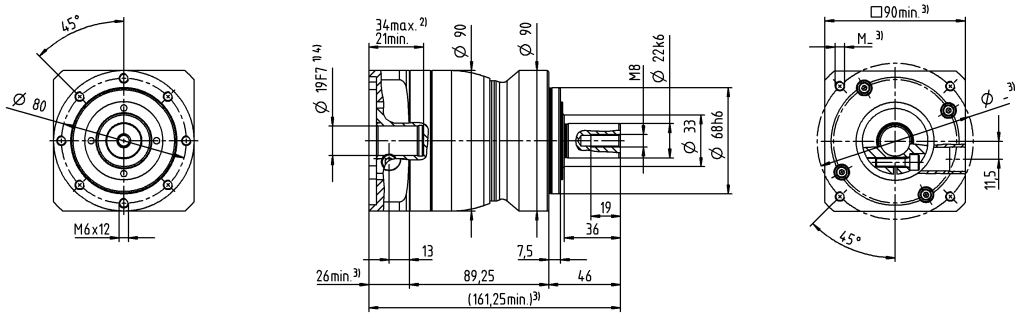
					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	185	185	185	185	185	185	185	185	168	185
				in.lb	1637	1637	1637	1637	1637	1637	1637	1637	1487	1637
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	125	115	125	125	120	115	115	115	105	115
				in.lb	1106	1018	1106	1106	1062	1018	1018	1018	929	1018
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2700	2900	2900	3500	3700	3500	3700	4000	4300	4300
Max. input speed			n_{1Max}	*rpm*	7000	7000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.8	1.5	0.67	0.55	0.47	0.46	0.4	0.34	0.33	0.29
				in.lb	16	13	5.9	4.9	4.2	4.1	3.5	3	2.9	2.6
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	12	12	12	12	12	12	12	12	12	12
				in.lb/arcmin	106	106	106	106	106	106	106	106	106	106
Max. axial force [c)]			F_{2AMax}	*N*	3350		3350							
				lb_f	754		754							
Max. lateral force [c)]			F_{2QMax}	*N*	4200		4200							
				lb_f	945		945							
Max. tilting moment			M_{2KMax}	*Nm*	236		236							
				in.lb	2089		2089							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	3.9		4.2							
				lb_m	8.6		9.3							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61		≤ 59							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X									
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	–	–	0.26	0.22	0.21	0.21	0.2	0.19	0.19	0.19
				10^{-3} in.lb.s²	–	–	0.23	0.19	0.19	0.19	0.18	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	–	–	0.28	0.24	0.23	0.23	0.22	0.21	0.21	0.21
				10^{-3} in.lb.s²	–	–	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.58	0.47	0.35	0.31	0.3	0.3	0.3	0.29	0.28	0.28
				10^{-3} in.lb.s²	0.51	0.42	0.31	0.27	0.27	0.27	0.27	0.26	0.25	0.25
	D	16	J_1	*kgcm²*	0.73	0.62	0.48	0.44	0.43	0.43	0.42	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.65	0.55	0.42	0.39	0.38	0.38	0.37	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.81	0.71	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.49
				10^{-3} in.lb.s²	0.72	0.63	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.6	1.5	–	–	–	–	–	–	–	–
	H	28	J_1	*kgcm²*	1.6	1.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.4	1.2	–	–	–	–	–	–	–	–

Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

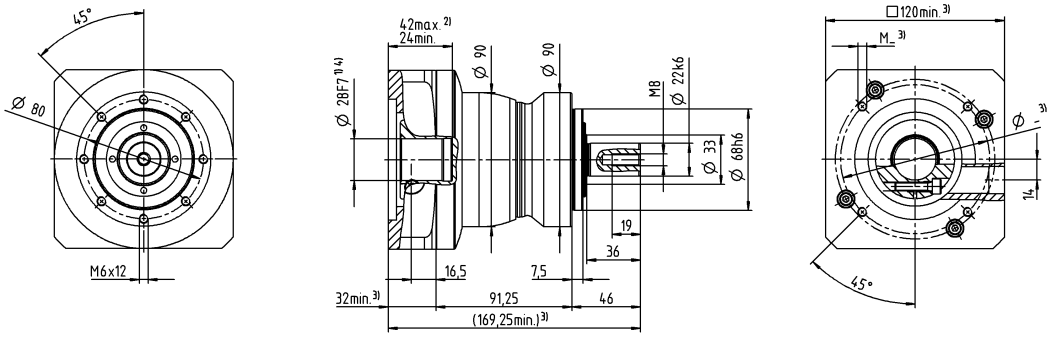
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

1-stage

up to 19 [4] (E) [5] clamping hub diameter

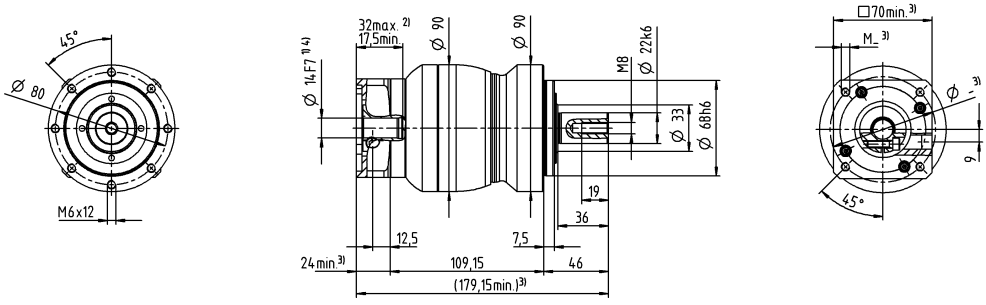


up to 28 [4] (H) clamping hub diameter

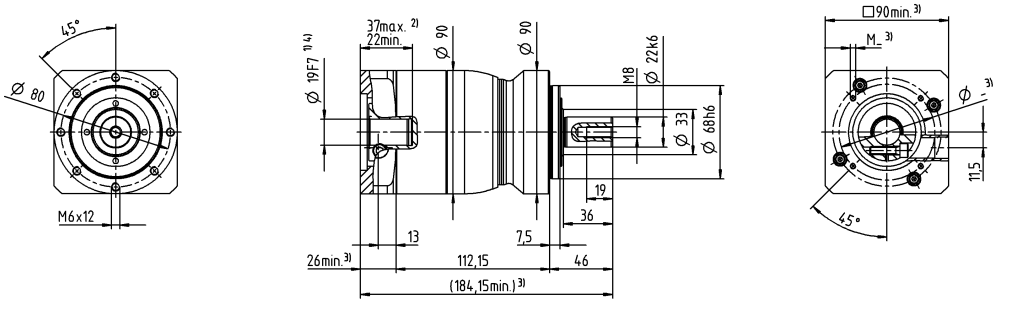


2-stage

up to 14 [4] (C) [5] clamping hub diameter



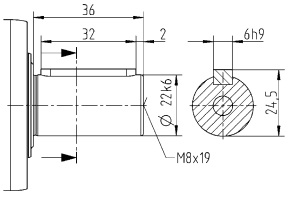
up to 19 [4] (E) clamping hub diameter



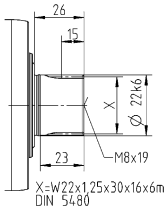
Motor shaft diameter [mm]

Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	480	480	480	480	480	480	480	480	432	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3824	4248
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	305	305	305	305	300	305	305	305	270	305
				in.lb	2699	2699	2699	2699	2655	2699	2699	2699	2390	2699
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2700	3300	3400	3300	3400	3600	3900	3900
Max. input speed			n_{1Max}	*rpm*	6000	6000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.3	2.7	1.7	1.4	1.2	1.2	1.1	0.93	0.88	0.81
				in.lb	29	24	15	12	11	11	9.7	8.2	7.8	7.2
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	30	30	30	30	30	30	30	30	30	30
				in.lb/arcmin	266	266	266	266	266	266	266	266	266	266
Max. axial force [c)]			F_{2AMax}	*N*	5650		5650							
				lb_f	1271		1271							
Max. lateral force [c)]			F_{2QMax}	*N*	6600		6600							
				lb_f	1485		1485							
Max. tilting moment			M_{2KMax}	*Nm*	487		487							
				in.lb	4310		4310							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	9.1		9.5							
				lb_m	20		21							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65		≤ 61							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X									
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	–	–	0.6	0.59	0.6	0.43	0.42	0.37	0.52	0.36
				10^{-3} in.lb.s²	–	–	0.53	0.52	0.53	0.38	0.37	0.33	0.46	0.32
	D	16	J_1	*kgcm²*	–	–	0.75	0.74	0.74	0.58	0.57	0.5	0.67	0.51
				10^{-3} in.lb.s²	–	–	0.66	0.65	0.65	0.51	0.5	0.44	0.59	0.45
	E	19	J_1	*kgcm²*	2.5	1.7	0.84	0.83	0.83	0.66	0.65	0.6	0.75	0.6
				10^{-3} in.lb.s²	2.2	1.5	0.74	0.73	0.73	0.58	0.58	0.53	0.66	0.53
	G	24	J_1	*kgcm²*	3.3	2.4	1.9	1.9	1.9	1.7	1.7	1.6	1.8	1.6
				10^{-3} in.lb.s²	2.9	2.1	1.7	1.6	1.7	1.5	1.5	1.5	1.6	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.6	1.6	1.6	1.4	1.4	1.3	1.5	1.3
				10^{-3} in.lb.s²	2.7	1.9	1.4	1.4	1.4	1.2	1.2	1.2	1.3	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	6.3	5.5	–	–	–	–	–	–	–	–
	K	38	J_1	*kgcm²*	8.3	7.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	7.3	6.5	–	–	–	–	–	–	–	–

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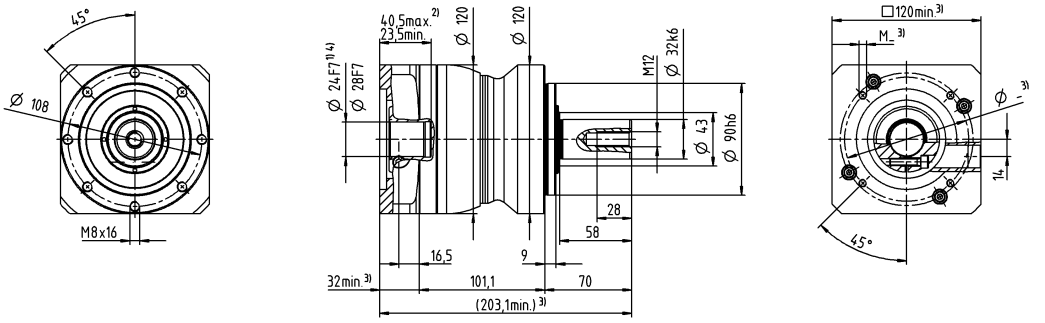
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

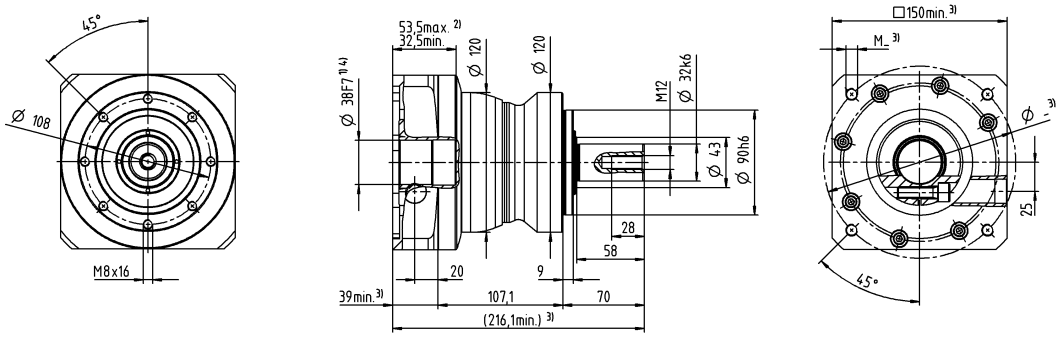
Motor shaft diameter [mm]

1-stage

up to 24/28 [4] (G [5]/H) clamping hub diameter

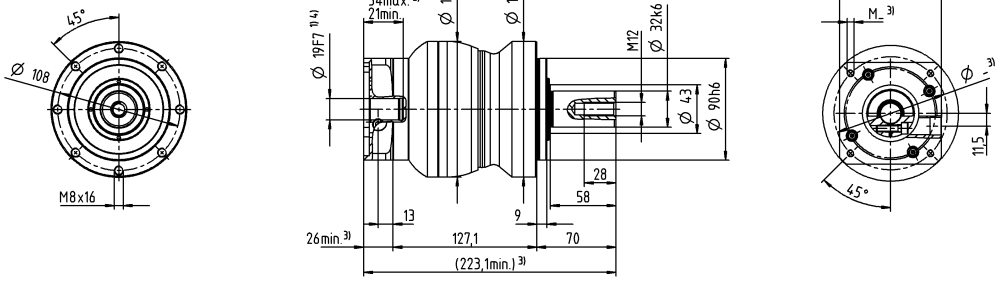


up to 38 [4] (K) clamping hub diameter

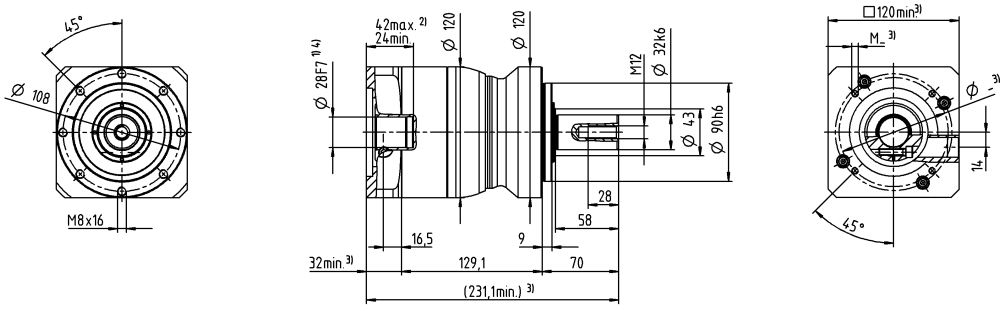


2-stage

up to 19 [4] (E) [5] clamping hub diameter

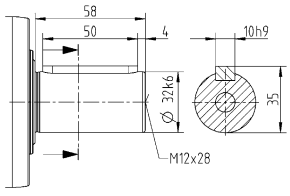


up to 28 [4] (H) clamping hub diameter

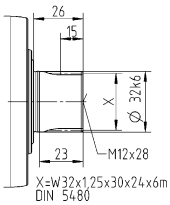


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	51	56	64	64	56	56
				in.lb	451	496	566	566	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	32	35	40	40	35	35
				in.lb	283	310	354	354	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	80	80	80	80	80	80
				in.lb	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2900	3100	3300	3600	3600	3800
Max. input speed			n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.92	0.74	0.62	0.51	0.47	0.41
				in.lb	8.1	6.5	5.5	4.5	4.2	3.6
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.3	3.3	3.3	3.3	2.8	2.8
				in.lb/arcmin	29	29	29	29	25	25
Max. axial force [c)]			F_{2AMax}	*N*	2400					
				lb_f	540					
Max. lateral force [c)]			F_{2QMax}	*N*	2800					
				lb_f	630					
Max. tilting moment			M_{2KMax}	*Nm*	152					
				in.lb	1345					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	1.8					
				lb_m	4					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 59					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA016.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.25	0.19	0.17	0.14	0.14	0.13
				10^{-3} *in.lb.s²*	0.22	0.17	0.15	0.12	0.12	0.12
	B	11	J_1	*kgcm²*	0.26	0.21	0.18	0.16	0.16	0.15
				10^{-3} *in.lb.s²*	0.23	0.19	0.16	0.14	0.14	0.13
	C	14	J_1	*kgcm²*	0.34	0.28	0.26	0.24	0.23	0.23
				10^{-3} *in.lb.s²*	0.3	0.25	0.23	0.21	0.2	0.2
	D	16	J_1	*kgcm²*	0.47	0.41	0.39	0.36	0.36	0.35
				10^{-3} *in.lb.s²*	0.42	0.36	0.35	0.32	0.32	0.31
	E	19	J_1	*kgcm²*	0.55	0.49	0.47	0.45	0.44	0.44
				10^{-3} *in.lb.s²*	0.49	0.43	0.42	0.4	0.39	0.39

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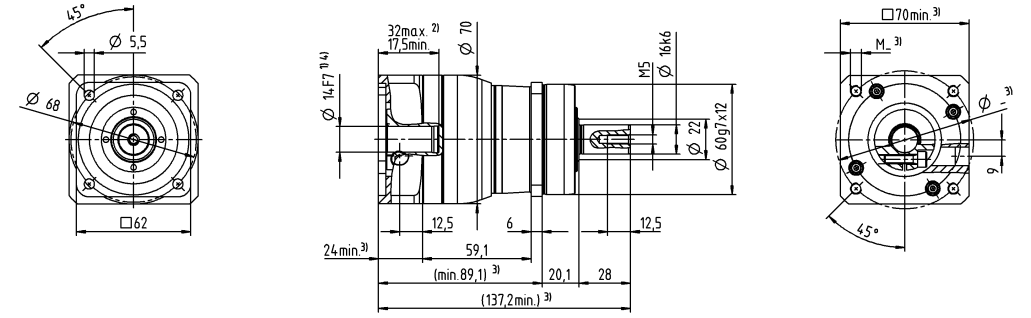
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

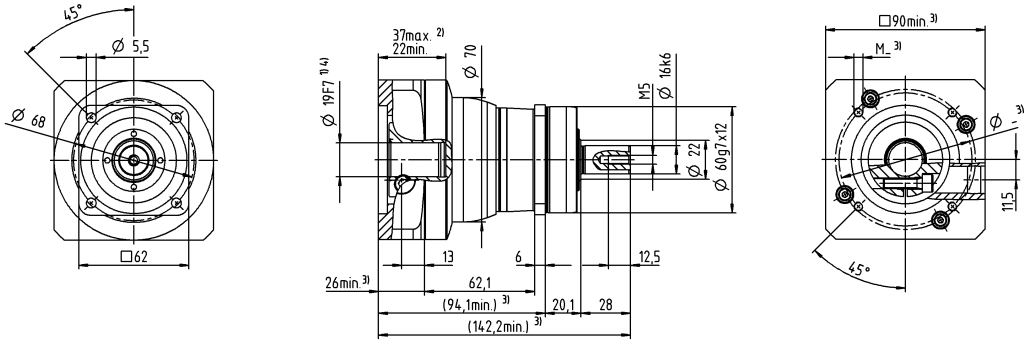
1-stage

Motor shaft diameter [mm]

up to 14 [4] (C) [5] clamping hub diameter

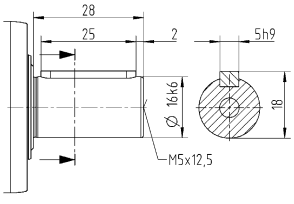


up to 19 [4] (E) clamping hub diameter

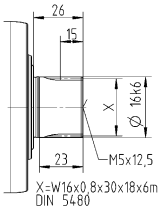


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage													
Ratio	**i**			**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		51	51	56	56	64	56	51	56	64	56	64	56	64	56
		in.lb		451	451	496	496	566	496	451	496	566	496	566	496	566	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		32	32	35	35	40	35	32	35	40	35	40	35	40	35
		in.lb		283	283	310	310	354	310	283	310	354	310	354	310	354	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3800	4000	3800	4000	4000	4300	4600	4400	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.34	0.29	0.29	0.25	0.23	0.21	0.21	0.2	0.2	0.19	0.17	0.17	0.16	0.15
		in.lb		3	2.6	2.6	2.2	2	1.9	1.9	1.8	1.8	1.7	1.5	1.5	1.4	1.3
Max. backlash	j_t	*arcmin*		≤ 10													
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	3.3	2.8
		in.lb/arcmin		29	29	29	29	29	29	29	29	29	29	29	25	29	25
Max. axial force [c)]	F_{2AMax}	*N*		2400													
		lb_f		540													
Max. lateral force [c)]	F_{2QMax}	*N*		2800													
		lb_f		630													
Max. tilting moment	M_{2KMax}	*Nm*		152													
		in.lb		1345													
Efficiency at full load	η	*%*		95													
Service life	L_h	*h*		> 20000													
Weight (incl. standard adapter plate)	m	*kg*		1.9													
		lb_m		4.2													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58													
Max. permitted housing temperature		*°C*		+90													
		°F		+194													
Ambient temperature		*°C*		–15 to +40													
		°F		+5 to +104													
Lubrication				Lubricated for life													
Direction of rotation				In- and output same direction													
Protection class				IP 65													
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X													
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

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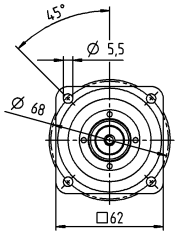
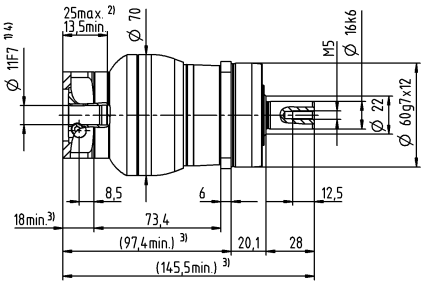
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

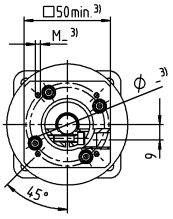
2-stage

Motor shaft diameter [mm]

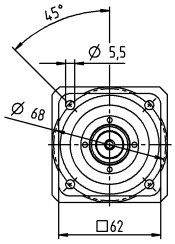
up to 11 [4] (B) [5] clamping hub diameter

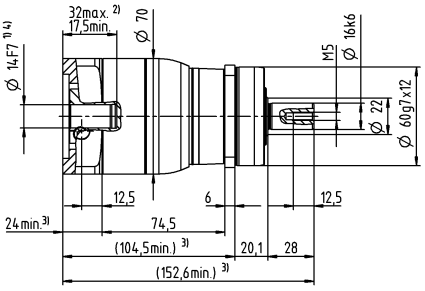


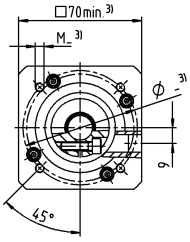




up to 14 [4] (C) clamping hub diameter

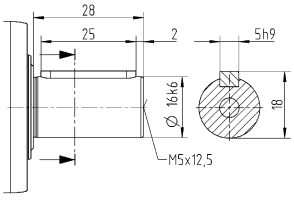




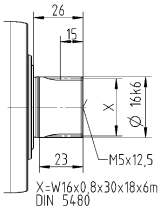


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	128	152	160	160	144	144
				in.lb	1133	1345	1416	1416	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	80	95	100	100	90	90
				in.lb	708	841	885	885	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2700	2900	3000	3200	3300	3500
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.8	1.5	1.3	1.1	1	0.94
				in.lb	16	13	12	9.7	8.9	8.3
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	9.5	9.5	9.5	9.5	8.5	8.5
				in.lb/arcmin	84	84	84	84	75	75
Max. axial force [c)]			F_{2AMax}	*N*	3350					
				lb_f	754					
Max. lateral force [c)]			F_{2QMax}	*N*	4200					
				lb_f	945					
Max. tilting moment			M_{2KMax}	*Nm*	236					
				in.lb	2089					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	3.6					
				lb_m	8					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.58	0.47	0.38	0.3	0.28	0.26
				10^{-3} in.lb.s²	0.51	0.42	0.34	0.27	0.25	0.23
	D	16	J_1	*kgcm²*	0.73	0.62	0.53	0.43	0.42	0.4
				10^{-3} in.lb.s²	0.65	0.55	0.47	0.38	0.37	0.35
	E	19	J_1	*kgcm²*	0.81	0.71	0.61	0.53	0.51	0.49
				10^{-3} in.lb.s²	0.72	0.63	0.54	0.47	0.45	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	1.6	1.6	1.5	1.5
				10^{-3} in.lb.s²	1.6	1.5	1.4	1.4	1.3	1.3
	H	28	J_1	*kgcm²*	1.6	1.4	1.4	1.3	1.3	1.2
				10^{-3} in.lb.s²	1.4	1.2	1.2	1.2	1.2	1.1

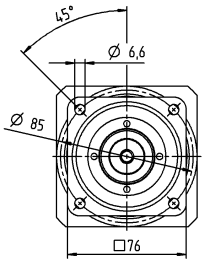
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

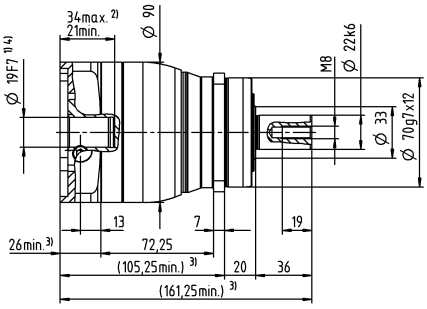
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

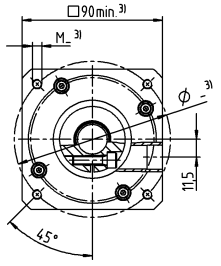
1-stage

Motor shaft diameter [mm]

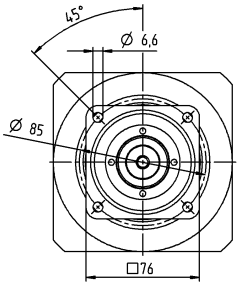
up to 19 [4] (E) [5] clamping hub diameter

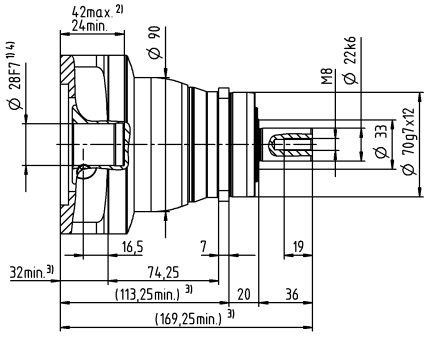


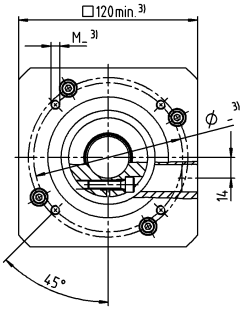




up to 28 [4] (H) clamping hub diameter

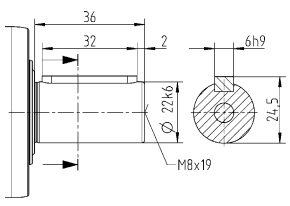




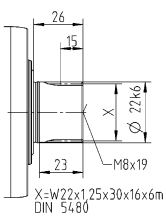


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage														
Ratio		**i**		**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]		T_{2a}	*Nm*	128	128	128	152	152	160	152	128	144	160	152	160	144	160	144
			in.lb	1133	1133	1133	1345	1345	1416	1345	1133	1275	1416	1345	1416	1275	1416	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)		T_{2B}	*Nm*	80	80	80	95	95	100	95	80	90	100	95	100	90	100	90
			in.lb	708	708	708	841	841	885	841	708	797	885	841	885	797	885	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
			in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)		n_{1N}	*rpm*	2900	3500	3700	3500	3700	3700	4000	4300	4100	4000	4300	4300	4100	4300	4300
Max. input speed		n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*	0.67	0.55	0.47	0.46	0.4	0.36	0.34	0.33	0.32	0.31	0.29	0.27	0.25	0.25	0.23
			in.lb	5.9	4.9	4.2	4.1	3.5	3.2	3	2.9	2.8	2.7	2.6	2.4	2.2	2.2	2
Max. backlash		j_t	*arcmin*	≤ 10														
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*	10	10	10	10	10	9.5	10	10	10	9.5	10	9.5	8.5	9.5	8.5
			in.lb/arcmin	89	89	89	89	89	84	89	89	89	84	89	84	75	84	75
Max. axial force [c)]		F_{2AMax}	*N*	3350														
			lb_f	754														
Max. lateral force [c)]		F_{2QMax}	*N*	4200														
			lb_f	945														
Max. tilting moment		M_{2KMax}	*Nm*	236														
			in.lb	2089														
Efficiency at full load		η	*%*	95														
Service life		L_h	*h*	> 20000														
Weight (incl. standard adapter plate)		m	*kg*	3.9														
			lb_m	8.6														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*	≤ 59														
Max. permitted housing temperature			*°C*	+90														
			°F	+194														
Ambient temperature			*°C*	–15 to +40														
			°F	+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA022.000-X														
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.26	0.22	0.21	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
				10^{-3} in.lb.s²	0.23	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	0.28	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
				10^{-3} in.lb.s²	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.35	0.31	0.3	0.3	0.3	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
				10^{-3} in.lb.s²	0.31	0.27	0.27	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	D	16	J_1	*kgcm²*	0.48	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.42	0.39	0.38	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

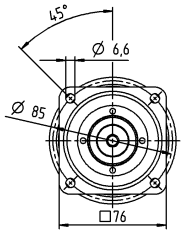
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

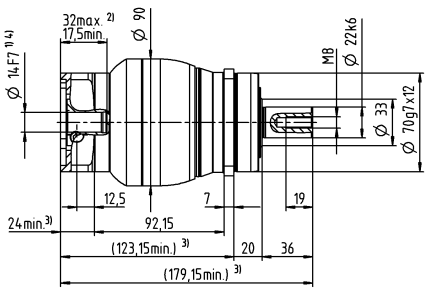
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

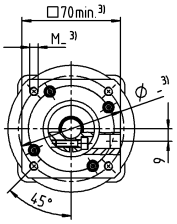
2-stage

Motor shaft diameter [mm]

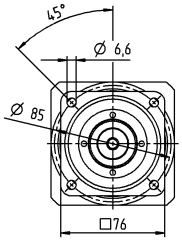
up to 14 [4] (C) [5] clamping hub diameter

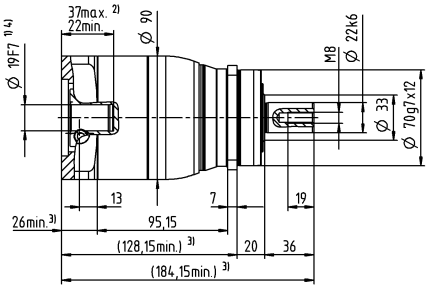


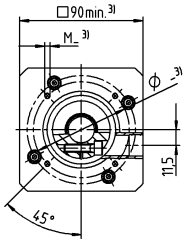




up to 19 [4] (E) clamping hub diameter

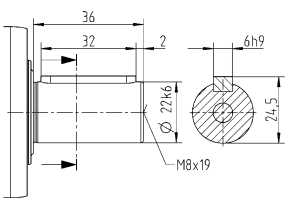




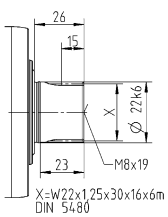


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	320	408	400	400	352	352
				in.lb	2832	3611	3540	3540	3115	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	255	250	250	220	220
				in.lb	1770	2257	2213	2213	1947	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2300	2500	2600	2700
Max. input speed			n_{1Max}	*rpm*	6000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.3	2.7	2.3	1.9	1.7	1.5
				in.lb	29	24	20	17	15	13
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	25	25	25	25	22	22
				in.lb/arcmin	221	221	221	221	195	195
Max. axial force [c)]			F_{2AMax}	*N*	5650					
				lb_f	1271					
Max. lateral force [c)]			F_{2QMax}	*N*	6600					
				lb_f	1485					
Max. tilting moment			M_{2KMax}	*Nm*	487					
				in.lb	4310					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	8.4					
				lb_m	19					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X					
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	2.5	1.7	1.3	1	0.94	0.87
				10^{-3} in.lb.s²	2.2	1.5	1.2	0.89	0.83	0.77
	G	24	J_1	*kgcm²*	3.3	2.4	2.1	1.8	1.7	1.6
				10^{-3} in.lb.s²	2.9	2.1	1.9	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.8	1.5	1.4	1.4
				10^{-3} in.lb.s²	2.7	1.9	1.6	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	5.9	5.6	5.5	5.4
				10^{-3} in.lb.s²	6.3	5.5	5.2	5	4.9	4.8
	K	38	J_1	*kgcm²*	8.3	7.4	7.1	6.7	6.6	6.6
				10^{-3} in.lb.s²	7.3	6.5	6.3	5.9	5.8	5.8

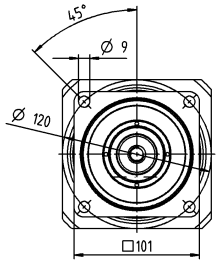
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

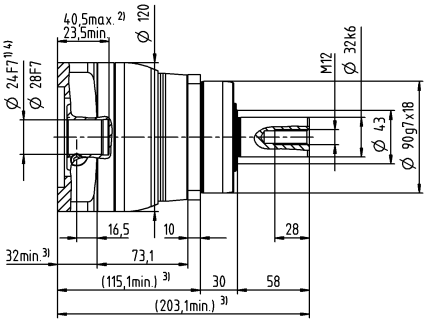
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

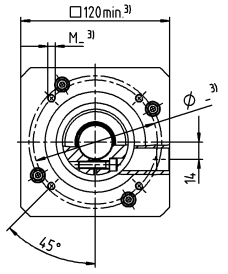
Motor shaft diameter [mm]

1-stage

up to 24/28 [4] (G [5]/H) clamping hub diameter

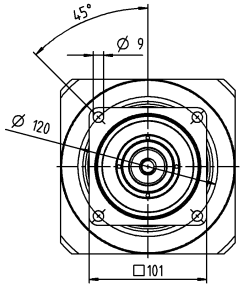


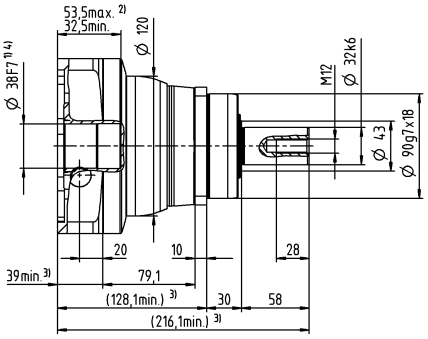


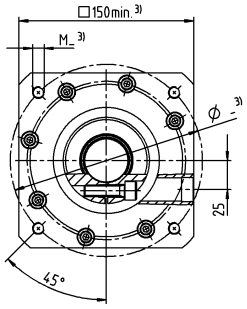


1-stage

up to 38 [4] (K) clamping hub diameter

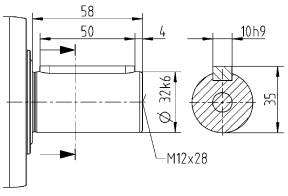




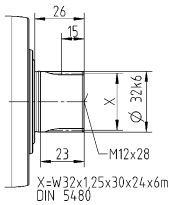


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage													
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		320	320	320	408	408	400	408	320	408	400	408	400	352	400	352
		in.lb		2832	2832	2832	3611	3611	3540	3611	2832	3611	3540	3611	3540	3115	3540	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		200	200	200	255	255	250	255	200	255	250	255	250	220	250	220
		in.lb		1770	1770	1770	2257	2257	2213	2257	1770	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
		in.lb		4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2700	3300	3400	3300	3400	3400	3600	3900	3700	3600	3900	3900	3700	3900	3900
Max. input speed	n_{1Max}	*rpm*		7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		1.7	1.4	1.2	1.2	1.1	1	0.93	0.88	0.88	0.87	0.81	0.77	0.75	0.72	0.68
		in.lb		15	12	11	11	9.7	8.9	8.2	7.8	7.8	7.7	7.2	6.8	6.6	6.4	6
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		25	25	25	25	25	25	25	25	25	25	25	25	22	25	22
		in.lb/arcmin		221	221	221	221	221	221	221	221	221	221	221	221	195	221	195
Max. axial force [c)]	F_{2AMax}	*N*		5650														
		lb_f		1271														
Max. lateral force [c)]	F_{2QMax}	*N*		6600														
		lb_f		1485														
Max. tilting moment	M_{2KMax}	*Nm*		487														
		in.lb		4310														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	*m*	*kg*		8.8														
		lb_m		19														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 61														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0150BA032.000-X														
Bore diameter of coupling on the application side			*mm*	X = 019.000 - 036.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.6	0.59	0.6	0.43	0.42	0.36	0.37	0.52	0.38	0.32	0.36	0.31	0.26	0.27	0.24
				10^{-3} in.lb.s²	0.53	0.52	0.53	0.38	0.37	0.32	0.33	0.46	0.34	0.28	0.32	0.27	0.23	0.24	0.21
	D	16	J_1	*kgcm²*	0.75	0.74	0.74	0.58	0.57	0.5	0.5	0.67	0.52	0.45	0.51	0.46	0.4	0.41	0.39
				10^{-3} in.lb.s²	0.66	0.65	0.65	0.51	0.5	0.44	0.44	0.59	0.46	0.4	0.45	0.41	0.35	0.36	0.35
	E	19	J_1	*kgcm²*	0.84	0.83	0.83	0.66	0.65	0.59	0.6	0.75	0.61	0.55	0.6	0.54	0.49	0.5	0.48
				10^{-3} in.lb.s²	0.74	0.73	0.73	0.58	0.58	0.52	0.53	0.66	0.54	0.49	0.53	0.48	0.43	0.44	0.42
	G	24	J_1	*kgcm²*	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.5	1.5	1.5
				10^{-3} in.lb.s²	1.7	1.6	1.7	1.5	1.5	1.4	1.5	1.6	1.5	1.4	1.4	1.4	1.3	1.4	1.3
	H	28	J_1	*kgcm²*	1.6	1.6	1.6	1.4	1.4	1.3	1.3	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2
				10^{-3} in.lb.s²	1.4	1.4	1.4	1.2	1.2	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1

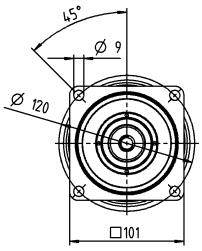
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

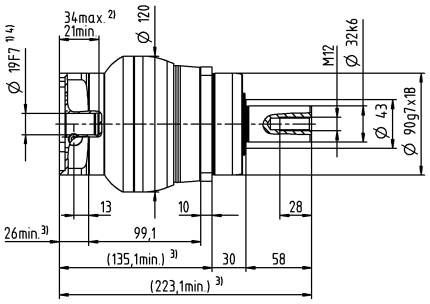
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

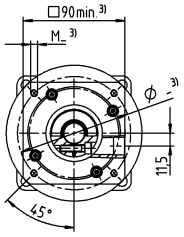
2-stage

Motor shaft diameter [mm]

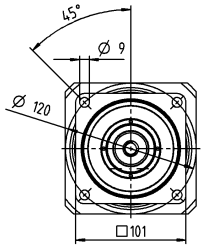
up to 19 [4] (E) [5] clamping hub diameter

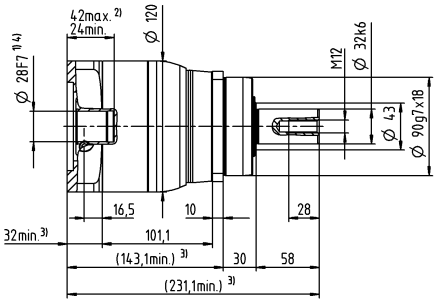


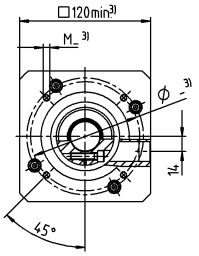




up to 28 [4] (H) clamping hub diameter

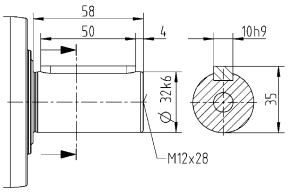




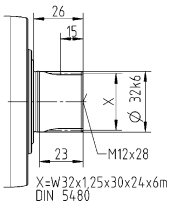


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage			2-stage				
Ratio			**i**		**5**	**8**	**10**	**25**	**32**	**50**	**64**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	800	640	640	700	640	700	640	640
				in.lb	7081	5665	5665	6196	5665	6196	5665	5665
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	500	400	400	500	400	500	400	400
				in.lb	4425	3540	3540	4425	3540	4425	3540	3540
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1000	1000	1000	1000	1000	1000	1000	1000
				in.lb	8851	8851	8851	8851	8851	8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	1800	1900	2000	2600	2500	3000	2900	3000
Max. input speed			n_{1Max}	*rpm*	4000	4000	4000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	4.2	3	2.6	1.6	1.5	1.2	1.1	0.97
				in.lb	37	27	23	14	13	11	9.7	8.6
Max. backlash			j_t	*arcmin*	≤ 8			≤ 10				
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	55	44	44	55	44	55	44	44
				in.lb/arcmin	487	389	389	487	389	487	389	389
Max. axial force [c)]			F_{2AMax}	*N*	9870			9870				
				lb_f	2221			2221				
Max. lateral force [c)]			F_{2QMax}	*N*	9900			9900				
				lb_f	2228			2228				
Max. tilting moment			M_{2KMax}	*Nm*	952			952				
				in.lb	8426			8426				
Efficiency at full load			η	*%*	97			95				
Service life			L_h	*h*	> 20000			> 20000				
Weight (incl. standard adapter plate)			*m*	*kg*	19			19				
				lb_m	42			42				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 68			≤ 65				
Max. permitted housing temperature				*°C*	+90			+90				
				°F	+194			+194				
Ambient temperature				*°C*	–15 to +40			–15 to +40				
				°F	+5 to +104			+5 to +104				
Lubrication					Lubricated for life							
Direction of rotation					In- and output same direction							
Protection class					IP 65							
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0300BA040.000-X							
Bore diameter of coupling on the application side				*mm*	X = 020.000 - 045.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	–	–	–	1.2	1.1	1	0.88	0.82
				10^{-3} in.lb.s²	–	–	–	1.1	0.97	0.89	0.78	0.73
	G	24	J_1	*kgcm²*	–	–	–	2	1.9	1.8	1.7	1.6
				10^{-3} in.lb.s²	–	–	–	1.8	1.7	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	–	–	–	1.7	1.6	1.5	1.4	1.3
				10^{-3} in.lb.s²	–	–	–	1.5	1.4	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	–	–	–	5.8	5.7	5.6	5.4	5.4
				10^{-3} in.lb.s²	–	–	–	5.1	5	5	4.8	4.8
	K	38	J_1	*kgcm²*	8.7	7.3	7.2	7	6.9	6.8	6.6	6.5
				10^{-3} in.lb.s²	7.7	6.5	6.4	6.2	6.1	6	5.8	5.8

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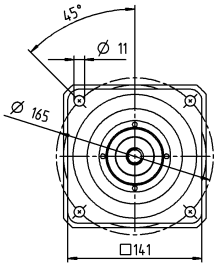
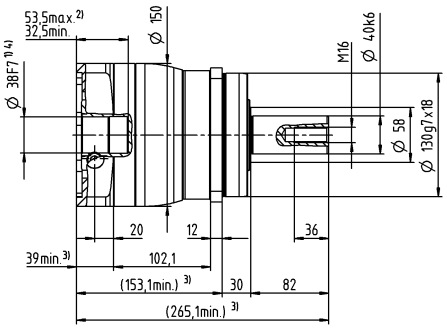
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

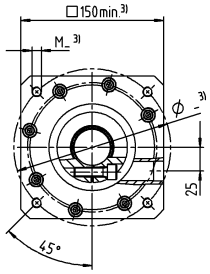
Motor shaft diameter [mm]

1-stage

up to 38 [4] (K) [5] clamping hub diameter

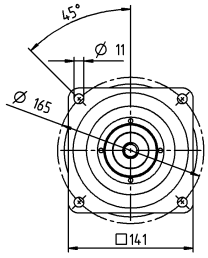


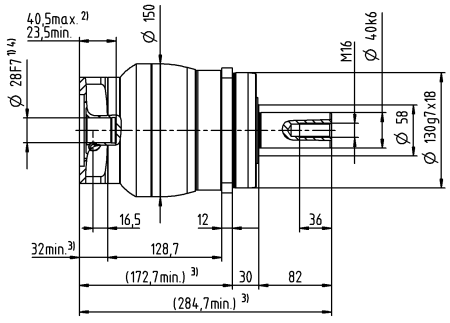


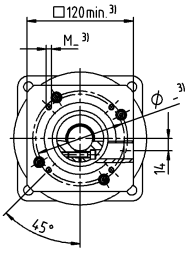


2-stage

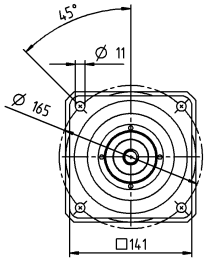
up to 28 [4] (H) [5] clamping hub diameter

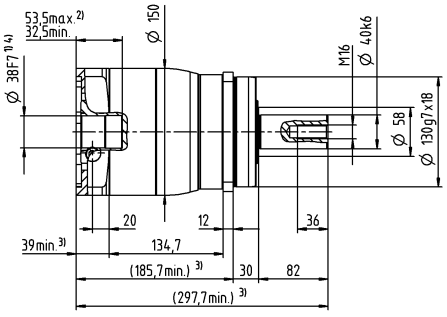


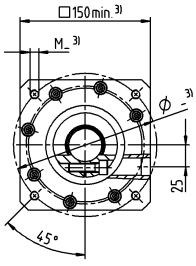




up to 38 [4] (K) [5] clamping hub diameter

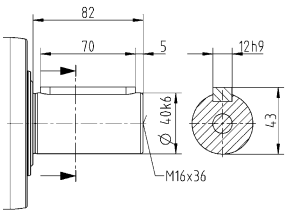




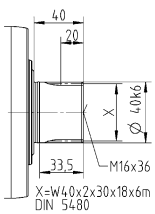


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				1-stage		2-stage						
Ratio	**i**			**3**	**4**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]	T_{2a}	*Nm*		80	67	62	67	67	67	67	62	67
		in.lb		708	593	549	593	593	593	593	549	593
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		55	42	39	42	42	42	42	39	42
		in.lb		487	372	345	372	372	372	372	345	372
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2900	3100	3800	4000	3800	4000	4300	4600	4600
Max. input speed	n_{1Max}	*rpm*		8000	8000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.92	0.74	0.34	0.29	0.29	0.25	0.21	0.21	0.19
		in.lb		8.1	6.5	3	2.6	2.6	2.2	1.9	1.9	1.7
Max. backlash	j_t	*arcmin*		≤ 8		≤ 10						
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		4	4	4	4	4	4	4	4	4
		in.lb/arcmin		35	35	35	35	35	35	35	35	35
Max. axial force [c)]	F_{2AMax}	*N*		2400		2400						
		lb_f		540		540						
Max. lateral force [c)]	F_{2QMax}	*N*		2800		2800						
		lb_f		630		630						
Max. tilting moment	M_{2KMax}	*Nm*		152		152						
		in.lb		1345		1345						
Efficiency at full load	η	%		97		95						
Service life	L_h	*h*		> 20000		> 20000						
Weight (incl. standard adapter plate)	*m*	*kg*		1.8		1.9						
		lb_m		4		4.2						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 59		≤ 58						
Max. permitted housing temperature		*°C*		+90		+90						
		°F		+194		+194						
Ambient temperature		*°C*		–15 to +40		–15 to +40						
		°F		+5 to +104		+5 to +104						
Lubrication				Lubricated for life								
Direction of rotation				In- and output same direction								
Protection class				IP 65								
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X								
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	A	9	J_1	*kgcm²*	0.25	0.19	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	0.22	0.17	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	B	11	J_1	*kgcm²*	0.26	0.21	0.06	0.06	0.05	0.05	0.05	0.05	0.05
				10^{-3} *in.lb.s²*	0.23	0.19	0.05	0.05	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.34	0.28	0.14	0.14	0.14	0.13	0.13	0.14	0.13
				10^{-3} *in.lb.s²*	0.3	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	D	16	J_1	*kgcm²*	0.47	0.41	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.42	0.36	–	–	–	–	–	–	–
	E	19	J_1	*kgcm²*	0.55	0.49	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.49	0.43	–	–	–	–	–	–	–

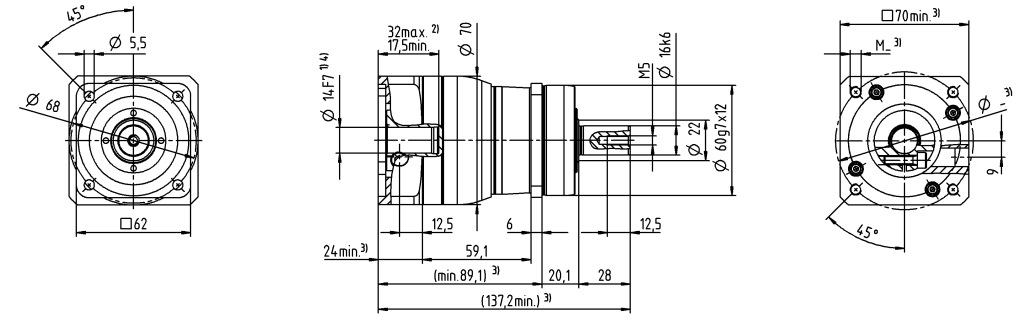
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

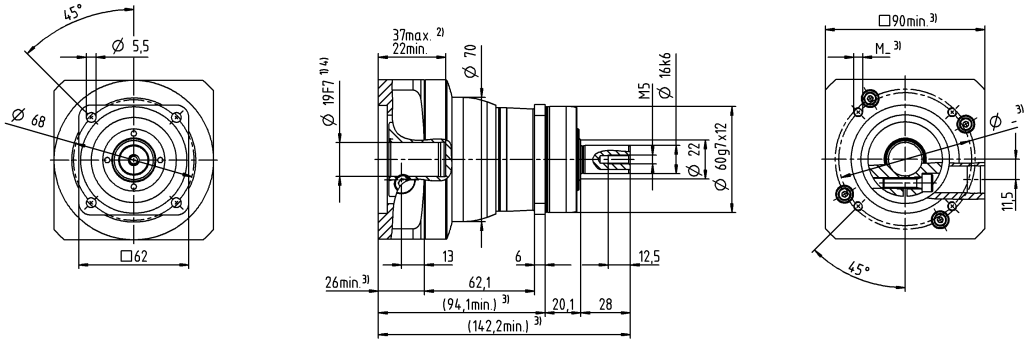
Motor shaft diameter [mm]

1-stage

up to 14 [4] (C) [5] clamping hub diameter

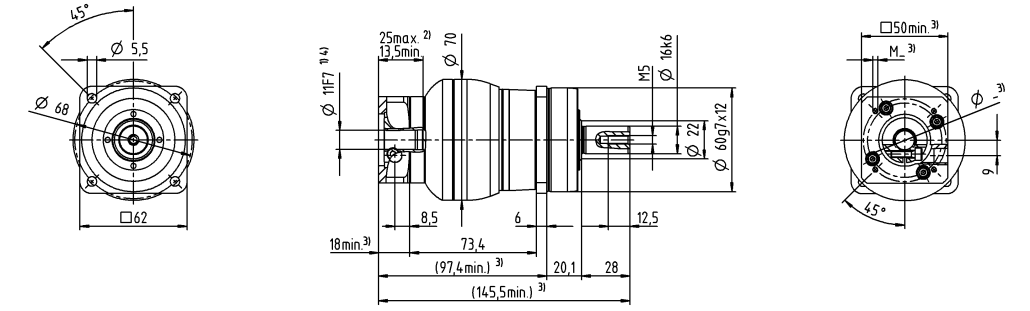


up to 19 [4] (E) clamping hub diameter

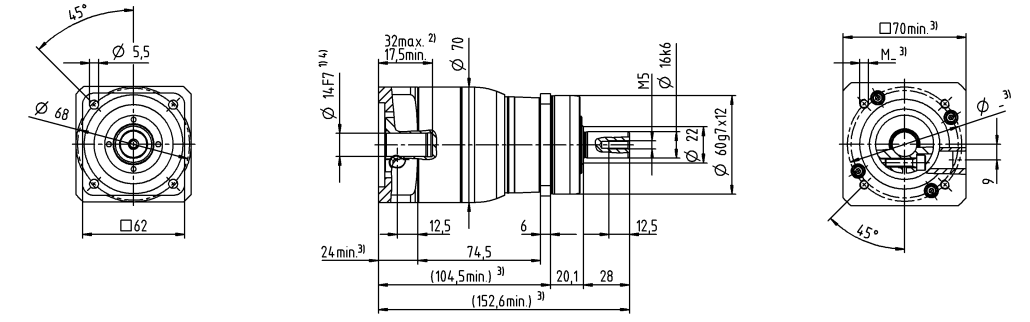


2-stage

up to 11 [4] (B) [5] clamping hub diameter

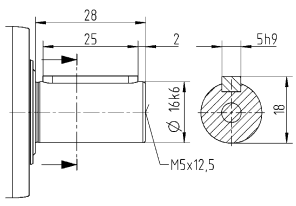


up to 14 [4] (C) clamping hub diameter

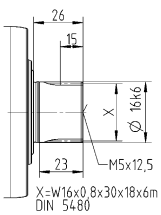


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	185	185	185	185	185	185	185	185	168	185
				in.lb	1637	1637	1637	1637	1637	1637	1637	1637	1487	1637
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	125	115	125	125	120	115	115	115	105	115
				in.lb	1106	1018	1106	1106	1062	1018	1018	1018	929	1018
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2700	2900	2900	3500	3700	3500	3700	4000	4300	4300
Max. input speed			n_{1Max}	*rpm*	7000	7000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.8	1.5	0.67	0.55	0.47	0.46	0.4	0.34	0.33	0.29
				in.lb	16	13	5.9	4.9	4.2	4.1	3.5	3	2.9	2.6
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	12	12	12	12	12	12	12	12	12	12
				in.lb/arcmin	106	106	106	106	106	106	106	106	106	106
Max. axial force [c)]			F_{2AMax}	*N*	3350		3350							
				lb_f	754		754							
Max. lateral force [c)]			F_{2QMax}	*N*	4200		4200							
				lb_f	945		945							
Max. tilting moment			M_{2KMax}	*Nm*	236		236							
				in.lb	2089		2089							
Efficiency at full load			η	%	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	3.6		3.9							
				lb_m	8		8.6							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61		≤ 59							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X									
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	–	–	0.26	0.22	0.21	0.21	0.2	0.19	0.19	0.19
				10^{-3} in.lb.s²	–	–	0.23	0.19	0.19	0.19	0.18	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	–	–	0.28	0.24	0.23	0.23	0.22	0.21	0.21	0.21
				10^{-3} in.lb.s²	–	–	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.58	0.47	0.35	0.31	0.3	0.3	0.3	0.29	0.28	0.28
				10^{-3} in.lb.s²	0.51	0.42	0.31	0.27	0.27	0.27	0.27	0.26	0.25	0.25
	D	16	J_1	*kgcm²*	0.73	0.62	0.48	0.44	0.43	0.43	0.42	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.65	0.55	0.42	0.39	0.38	0.38	0.37	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.81	0.71	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.49
				10^{-3} in.lb.s²	0.72	0.63	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.6	1.5	–	–	–	–	–	–	–	–
	H	28	J_1	*kgcm²*	1.6	1.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.4	1.2	–	–	–	–	–	–	–	–

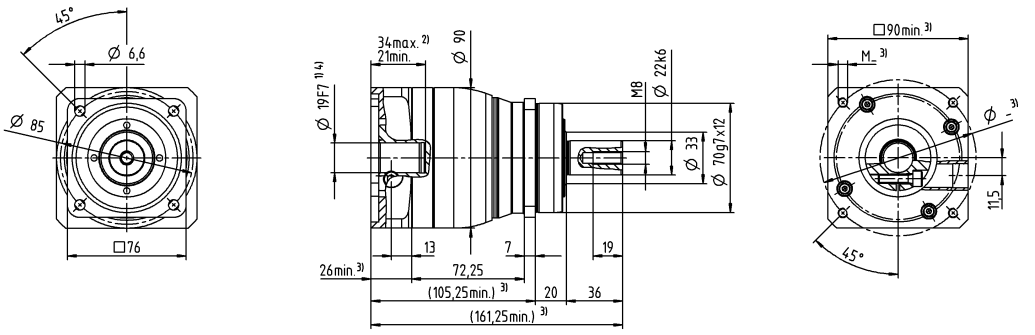
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

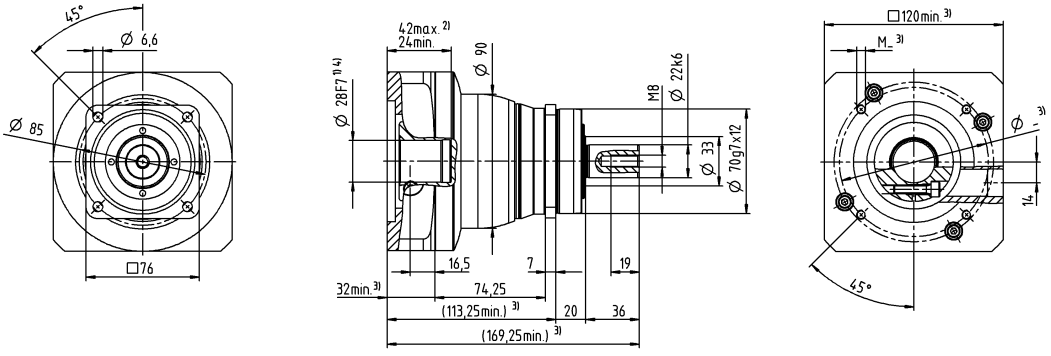
Motor shaft diameter [mm]

1-stage

up to 19 [4] (E) [5] clamping hub diameter

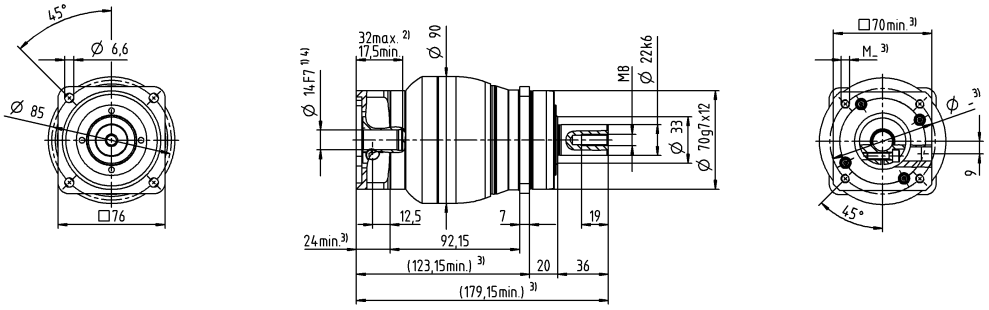


up to 28 [4] (H) clamping hub diameter

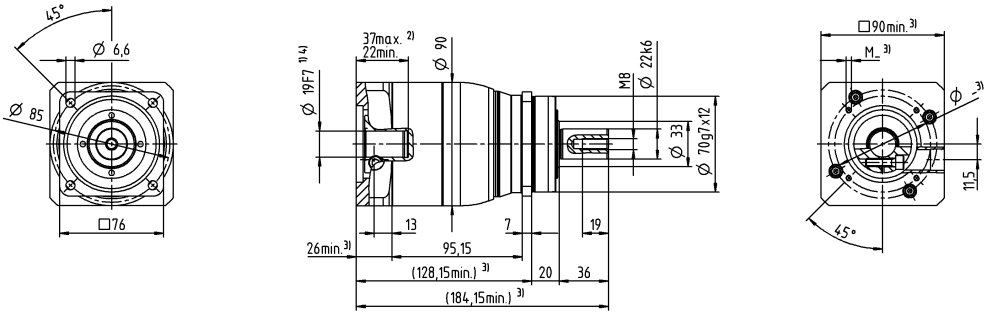


2-stage

up to 14 [4] (C) [5] clamping hub diameter

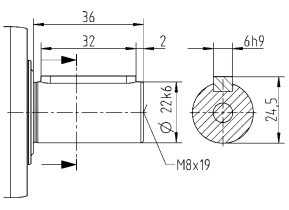


up to 19 [4] (E) clamping hub diameter

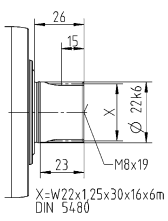


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NPS 035 MA 1-/2-stage

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	480	480	480	480	480	480	480	480	432	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3824	4248
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	305	305	305	305	300	305	305	305	270	305
				in.lb	2699	2699	2699	2699	2655	2699	2699	2699	2390	2699
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2700	3300	3400	3300	3400	3600	3900	3900
Max. input speed			n_{1Max}	*rpm*	6000	6000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.3	2.7	1.7	1.4	1.2	1.2	1.1	0.93	0.88	0.81
				in.lb	29	24	15	12	11	11	9.7	8.2	7.8	7.2
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	30	30	30	30	30	30	30	30	30	30
				in.lb/arcmin	266	266	266	266	266	266	266	266	266	266
Max. axial force [c)]			F_{2AMax}	*N*	5650		5650							
				lb_f	1271		1271							
Max. lateral force [c)]			F_{2QMax}	*N*	6600		6600							
				lb_f	1485		1485							
Max. tilting moment			M_{2KMax}	*Nm*	487		487							
				in.lb	4310		4310							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	8.4		8.8							
				lb_m	19		19							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65		≤ 61							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X									
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	–	–	0.6	0.59	0.6	0.43	0.42	0.37	0.52	0.36
				10^{-3} in.lb.s²	–	–	0.53	0.52	0.53	0.38	0.37	0.33	0.46	0.32
	D	16	J_1	*kgcm²*	–	–	0.75	0.74	0.74	0.58	0.57	0.5	0.67	0.51
				10^{-3} in.lb.s²	–	–	0.66	0.65	0.65	0.51	0.5	0.44	0.59	0.45
	E	19	J_1	*kgcm²*	2.5	1.7	0.84	0.83	0.83	0.66	0.65	0.6	0.75	0.6
				10^{-3} in.lb.s²	2.2	1.5	0.74	0.73	0.73	0.58	0.58	0.53	0.66	0.53
	G	24	J_1	*kgcm²*	3.3	2.4	1.9	1.9	1.9	1.7	1.7	1.6	1.8	1.6
				10^{-3} in.lb.s²	2.9	2.1	1.7	1.6	1.7	1.5	1.5	1.5	1.6	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.6	1.6	1.6	1.4	1.4	1.3	1.5	1.3
				10^{-3} in.lb.s²	2.7	1.9	1.4	1.4	1.4	1.2	1.2	1.2	1.3	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	6.3	5.5	–	–	–	–	–	–	–	–
	K	38	J_1	*kgcm²*	8.3	7.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	7.3	6.5	–	–	–	–	–	–	–	–

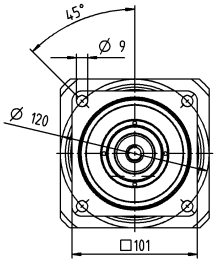
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

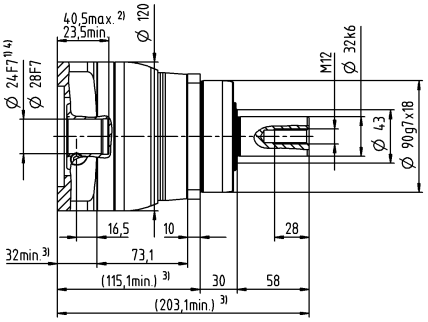
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

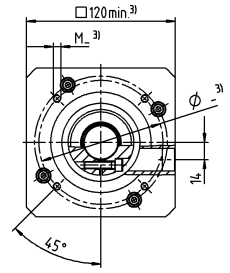
Motor shaft diameter [mm]

1-stage

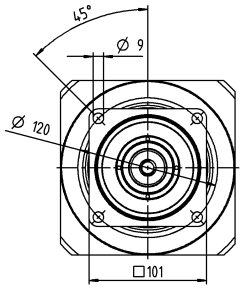
up to 24/28 [4] (G [5]/H) clamping hub diameter

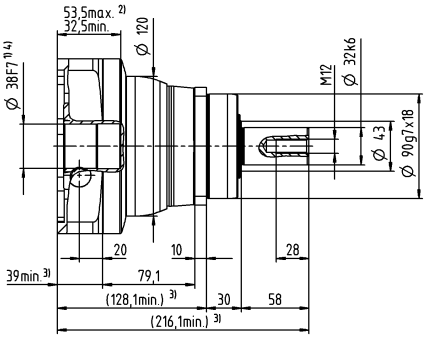


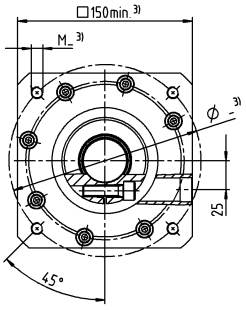




up to 38 [4] (K) clamping hub diameter

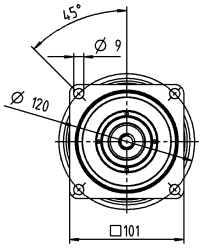


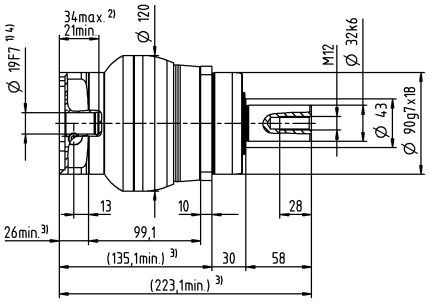


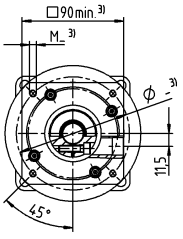


2-stage

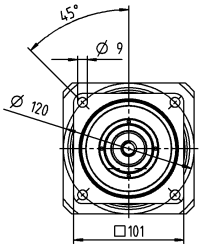
up to 19 [4] (E) [5] clamping hub diameter

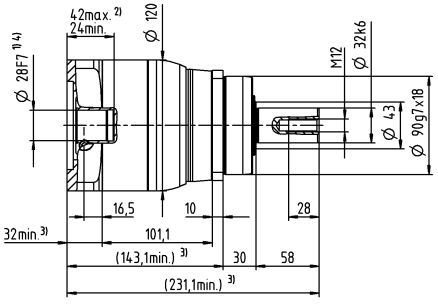


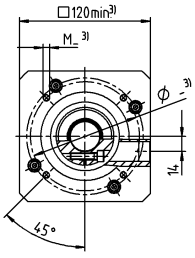




up to 28 [4] (H) clamping hub diameter

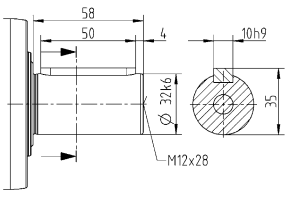




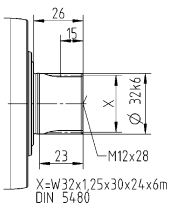


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
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[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage				
Ratio			**i**		**4**	**5**	**7**	**8**	**10**
Max. torque [a] [b]			T_{2a}	*Nm*	18	22	22	21	21
				in.lb	159	195	195	186	186
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	11	14	14	13	13
				in.lb	97	124	124	115	115
Emergency stop torque [a] [b] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	26	26	26	26	26
				in.lb	230	230	230	230	230
Permitted average input speed [d] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3800	4000	4300	4400	4600
Max. input speed			n_{1Max}	*rpm*	10000	10000	10000	10000	10000
Mean no load running torque [b] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.08	0.07	0.05	0.05	0.05
				in.lb	0.71	0.62	0.44	0.44	0.44
Max. backlash			j_t	*arcmin*	≤ 10				
Torsional rigidity [b]			C_{t21}	*Nm/arcmin*	1.2	1.2	1.2	0.85	0.85
				in.lb/arcmin	11	11	11	7.5	7.5
Max. axial force [c]			F_{2AMax}	*N*	600				
				lb_f	135				
Max. tilting moment			M_{2KMax}	*Nm*	17				
				in.lb	150				
Efficiency at full load			η	%	97				
Service life			L_h	*h*	> 20000				
Weight (incl. standard adapter plate)			*m*	*kg*	0.9				
				lb_m	2				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 58				
Max. permitted housing temperature				*°C*	+90				
				°F	+194				
Ambient temperature				*°C*	–15 to +40				
				°F	+5 to +104				
Lubrication					Lubricated for life				
Direction of rotation					In- and output same direction				
Protection class					IP 64				
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.03	0.03	0.03	0.02
				10^{-3} *in.lb.s²*	0.04	0.03	0.03	0.03	0.02
	A	9	J_1	*kgcm²*	0.04	0.03	0.03	0.03	0.02
				10^{-3} *in.lb.s²*	0.04	0.03	0.03	0.03	0.02
	B	11	J_1	*kgcm²*	0.06	0.05	0.05	0.04	0.04
				10^{-3} *in.lb.s²*	0.05	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.14	0.13	0.13	0.13
				10^{-3} *in.lb.s²*	0.12	0.12	0.12	0.12	0.12

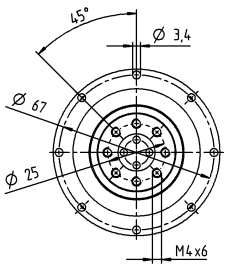
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

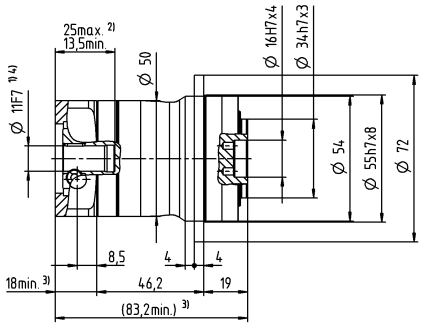
[a] Valid for torque transmission only
[b] Valid for standard clamping hub diameter
[c] Refers to center of the output shaft or flange
[d] Please reduce input speed at higher ambient temperatures

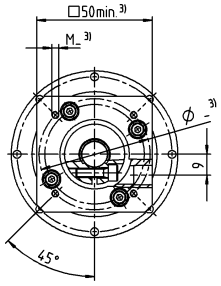
1-stage

Motor shaft diameter [mm]

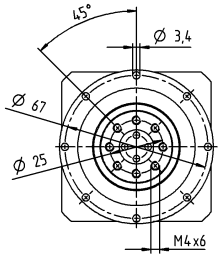
up to 11 [4] (B) [5]
clamping hub
diameter

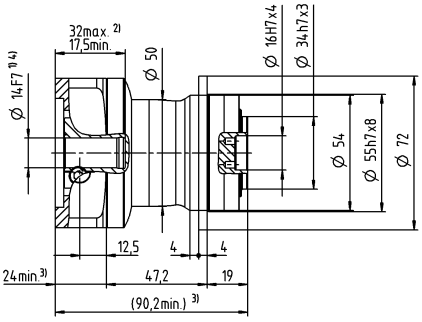


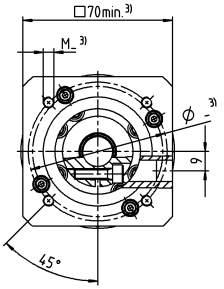




up to 14 [4] (C)
clamping hub
diameter







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[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage									
Ratio	**i**			**16**	**20**	**25**	**28**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b)]	T_{2a}	*Nm*		18	18	22	18	22	18	22	21	22	21
		in.lb		159	159	195	159	195	159	195	186	195	186
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*		11	11	14	11	14	11	14	13	14	13
		in.lb		97	97	124	97	124	97	124	115	124	115
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		26	26	26	26	26	26	26	26	26	26
		in.lb		230	230	230	230	230	230	230	230	230	230
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		4000	4000	4000	4300	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
		in.lb		0.35	0.35	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Max. backlash	j_t	*arcmin*		≤ 13									
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.85	1.2	0.85
		in.lb/arcmin		11	11	11	11	11	11	11	7.5	11	7.5
Max. axial force [c)]	F_{2AMax}	*N*		600									
		lb_f		135									
Max. tilting moment	M_{2KMax}	*Nm*		17									
		in.lb		150									
Efficiency at full load	η	*%*		95									
Service life	L_h	*h*		> 20000									
Weight (incl. standard adapter plate)	m	*kg*		1.1									
		lb_m		2.4									
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58									
Max. permitted housing temperature		*°C*		+90									
		°F		+194									
Ambient temperature		*°C*		–15 to +40									
		°F		+5 to +104									
Lubrication				Lubricated for life									
Direction of rotation				In- and output same direction									
Protection class				IP 64									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z 8	J_1	*kgcm²*	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03
			10^{-3} *in.lb.s²*	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03
	A 9	J_1	*kgcm²*	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03
			10^{-3} *in.lb.s²*	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03
	B 11	J_1	*kgcm²*	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.05
			10^{-3} *in.lb.s²*	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C 14	J_1	*kgcm²*	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
			10^{-3} *in.lb.s²*	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

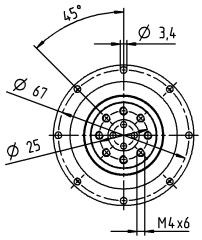
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

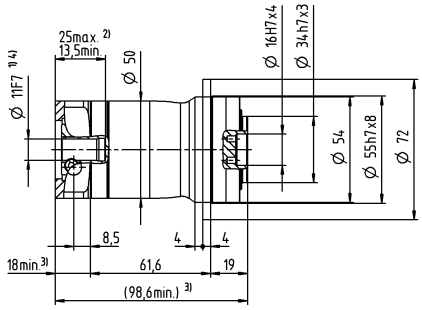
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

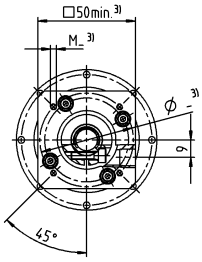
2-stage

Motor shaft diameter [mm]

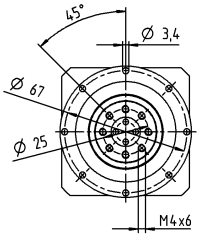
up to 11 [4] (B) [5]
clamping hub
diameter

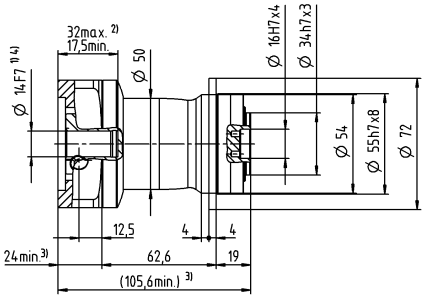


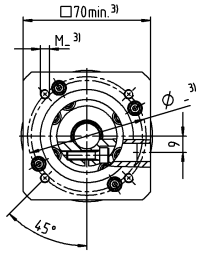




up to 14 [4] (C)
clamping hub
diameter







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[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b)]			T_{2a}	*Nm*	51	56	60	60	56	56
				in.lb	451	496	531	531	496	496
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	32	35	40	40	35	35
				in.lb	283	310	354	354	310	310
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	75	75	75	75	75	75
				in.lb	664	664	664	664	664	664
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3300	3500	3700	4000	4100	4300
Max. input speed			n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.25	0.2	0.17	0.14	0.13	0.11
				in.lb	2.2	1.8	1.5	1.2	1.2	0.97
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.3	3.3	3.3	3.3	2.8	2.8
				in.lb/arcmin	29	29	29	29	25	25
Max. axial force [c)]			F_{2AMax}	*N*	1380					
				lb_f	311					
Max. tilting moment			M_{2KMax}	*Nm*	42					
				in.lb	372					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	2					
				lb_m	4.4					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 59					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.31	0.23	0.19	0.16	0.15	0.14
				10^{-3} *in.lb.s²*	0.27	0.2	0.17	0.14	0.13	0.12
	B	11	J_1	*kgcm²*	0.33	0.24	0.21	0.17	0.17	0.16
				10^{-3} *in.lb.s²*	0.29	0.21	0.19	0.15	0.15	0.14
	C	14	J_1	*kgcm²*	0.41	0.32	0.28	0.25	0.24	0.23
				10^{-3} *in.lb.s²*	0.36	0.28	0.25	0.22	0.21	0.2
	D	16	J_1	*kgcm²*	0.53	0.45	0.41	0.38	0.37	0.36
				10^{-3} *in.lb.s²*	0.47	0.4	0.36	0.34	0.33	0.32
	E	19	J_1	*kgcm²*	0.62	0.53	0.49	0.46	0.45	0.44
				10^{-3} *in.lb.s²*	0.55	0.47	0.43	0.41	0.4	0.39

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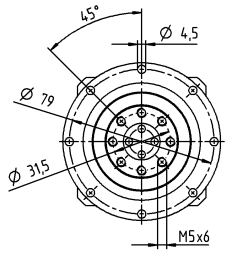
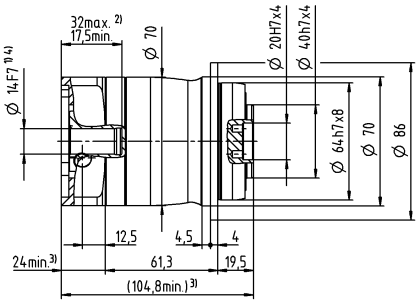
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

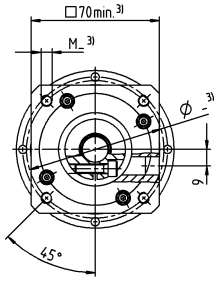
1-stage

Motor shaft diameter [mm]

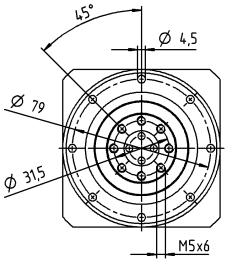
up to 14 [4] (C) [5]
clamping hub
diameter

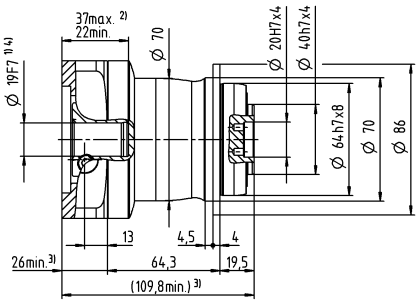


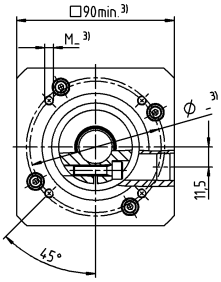




up to 19 [4] (E)
clamping hub
diameter







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[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage													
Ratio		**i**		**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b)]	T_{2a}	*Nm*		51	51	56	56	60	56	51	56	60	56	60	56	60	56
		in.lb		451	451	496	496	531	496	451	496	531	496	531	496	531	496
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*		32	32	35	35	40	35	32	35	40	35	40	35	40	35
		in.lb		283	283	310	310	354	310	283	310	354	310	354	310	354	310
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		75	75	75	75	75	75	75	75	75	75	75	75	75	75
		in.lb		664	664	664	664	664	664	664	664	664	664	664	664	664	664
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3800	4000	3800	4000	4000	4300	4600	4400	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.08	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03
		in.lb		0.71	0.62	0.53	0.53	0.44	0.44	0.44	0.35	0.35	0.35	0.35	0.27	0.27	0.27
Max. backlash	j_t	*arcmin*		≤ 10													
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	3.3	2.8
		in.lb/arcmin		29	29	29	29	29	29	29	29	29	29	29	25	29	25
Max. axial force [c)]	F_{2AMax}	*N*		1380													
		lb_f		311													
Max. tilting moment	M_{2KMax}	*Nm*		42													
		in.lb		372													
Efficiency at full load	η	*%*		95													
Service life	L_h	*h*		> 20000													
Weight (incl. standard adapter plate)	m	*kg*		2.1													
		lb_m		4.6													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58													
Max. permitted housing temperature			*°C*	+90													
			°F	+194													
Ambient temperature			*°C*	–15 to +40													
			°F	+5 to +104													
Lubrication				Lubricated for life													
Direction of rotation				In- and output same direction													
Protection class				IP 64													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.15	0.14	0.14	0.14	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

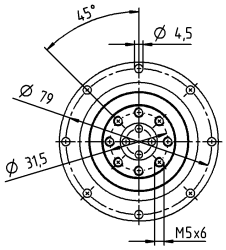
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

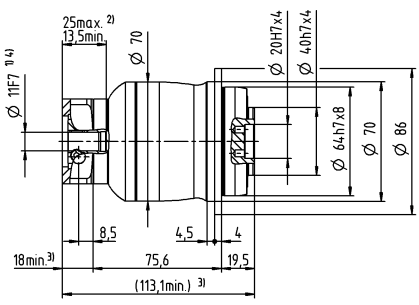
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

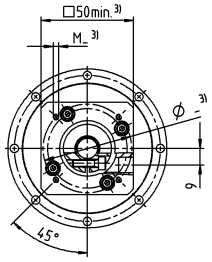
2-stage

Motor shaft diameter [mm]

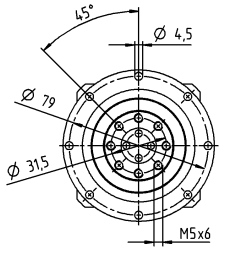
up to 11 [4] (B) [5]
clamping hub
diameter

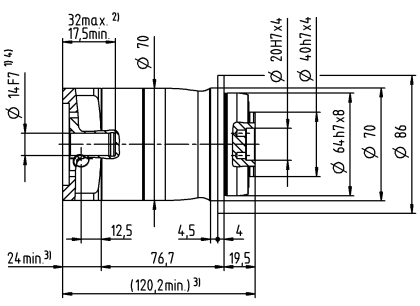


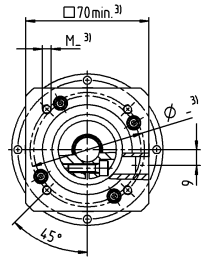




up to 14 [4] (C)
clamping hub
diameter







Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b)]			T_{2a}	*Nm*	128	152	160	160	144	144
				in.lb	1133	1345	1416	1416	1275	1275
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	80	95	100	100	90	90
				in.lb	708	841	885	885	797	797
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3100	3300	3400	3600	3700	3900
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.43	0.35	0.3	0.24	0.23	0.2
				in.lb	3.8	3.1	2.7	2.1	2	1.8
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	9.5	9.5	9.5	9.5	8.5	8.5
				in.lb/arcmin	84	84	84	84	75	75
Max. axial force [c)]			F_{2AMax}	*N*	1900					
				lb_f	428					
Max. tilting moment			M_{2KMax}	*Nm*	79					
				in.lb	699					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	4.4					
				lb_m	9.7					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	$kgcm^2$	0.75	0.57	0.44	0.33	0.3	0.27
				10^{-3} $in.lb.s^2$	0.66	0.5	0.39	0.29	0.27	0.24
	D	16	J_1	$kgcm^2$	0.9	0.72	0.59	0.46	0.45	0.42
				10^{-3} $in.lb.s^2$	0.8	0.64	0.52	0.41	0.4	0.37
	E	19	J_1	$kgcm^2$	0.99	0.8	0.67	0.56	0.53	0.5
				10^{-3} $in.lb.s^2$	0.88	0.71	0.59	0.5	0.47	0.44
	G	24	J_1	$kgcm^2$	2	1.8	1.7	1.6	1.6	1.5
				10^{-3} $in.lb.s^2$	1.8	1.6	1.5	1.4	1.4	1.3
	H	28	J_1	$kgcm^2$	1.7	1.5	1.4	1.3	1.3	1.2
				10^{-3} $in.lb.s^2$	1.5	1.3	1.2	1.2	1.2	1.1

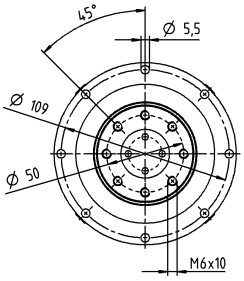
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

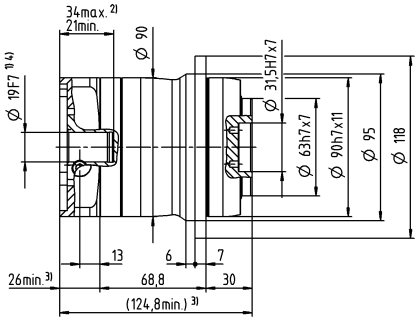
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

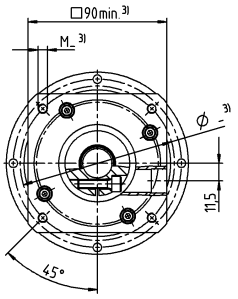
1-stage

Motor shaft diameter [mm]

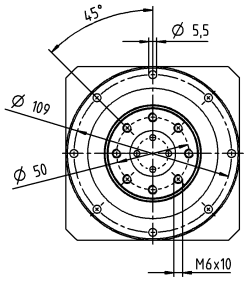
up to 19 [4] (E) [5] clamping hub diameter

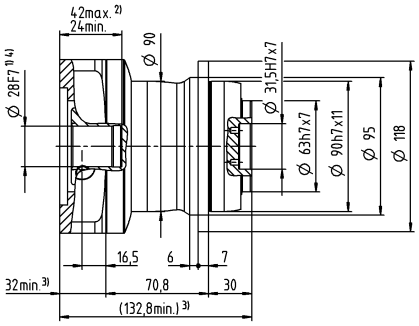


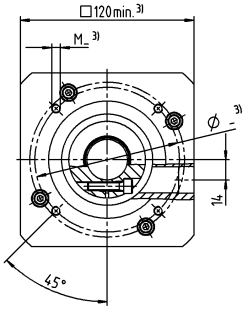




up to 28 [4] (H) clamping hub diameter







Non-tolerated dimensions are nominal dimensions
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage													
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b)]	T_{2a}	*Nm*		128	128	128	152	152	160	152	128	152	160	152	160	144	160	144
		in.lb		1133	1133	1133	1345	1345	1416	1345	1133	1345	1416	1345	1416	1275	1416	1275
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*		80	80	80	95	95	100	95	80	95	100	95	100	90	100	90
		in.lb		708	708	708	841	841	885	841	708	841	885	841	885	797	885	797
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
		in.lb		1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3300	3500	3700	3500	3700	3700	4000	4300	4100	4000	4300	4300	4100	4300	4300
Max. input speed	n_{1Max}	*rpm*		8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.16	0.13	0.12	0.11	0.1	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.06	0.06
		in.lb		1.4	1.2	1.1	0.97	0.89	0.8	0.8	0.71	0.71	0.71	0.71	0.62	0.62	0.53	0.53
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		10	10	10	10	10	9.5	10	10	10	9.5	10	9.5	8.5	9.5	8.5
		in.lb/arcmin		89	89	89	89	89	84	89	89	89	84	89	84	75	84	75
Max. axial force [c)]	F_{2AMax}	*N*		1900														
		lb_f		428														
Max. tilting moment	M_{2KMax}	*Nm*		79														
		in.lb		699														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	m	*kg*		4.7														
		lb_m		10														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 59														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 64														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.28	0.23	0.22	0.22	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
				10^{-3} in.lb.s²	0.25	0.2	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	0.3	0.25	0.23	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
				10^{-3} in.lb.s²	0.27	0.22	0.2	0.21	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.37	0.32	0.31	0.31	0.3	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28
				10^{-3} in.lb.s²	0.33	0.28	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.26	0.25	0.25	0.25	0.25	0.25
	D	16	J_1	*kgcm²*	0.5	0.45	0.44	0.44	0.43	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.44	0.4	0.39	0.39	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.58	0.53	0.52	0.52	0.51	0.51	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.51	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

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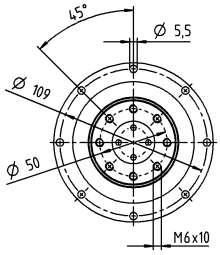
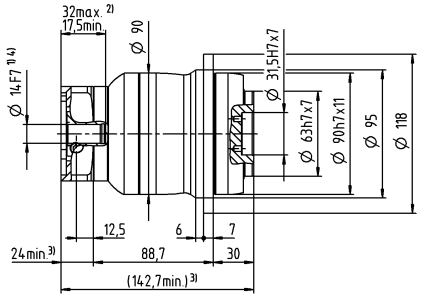
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

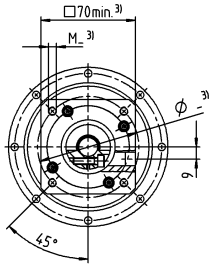
2-stage

Motor shaft diameter [mm]

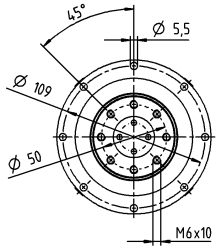
up to 14 [4] (C) [5] clamping hub diameter

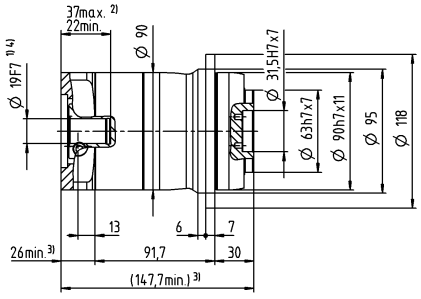


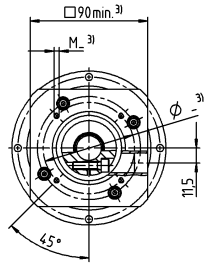




up to 19 [4] (E) clamping hub diameter







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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b)]			T_{2a}	*Nm*	320	365	365	365	352	352
				in.lb	2832	3231	3231	3231	3115	3115
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	255	250	250	220	220
				in.lb	1770	2257	2213	2213	1947	1947
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	480	480	480	480	480	480
				in.lb	4248	4248	4248	4248	4248	4248
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2300	2500	2600	2800	2900	3000
Max. input speed			n_{1Max}	*rpm*	6000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.7	1.3	1.1	0.79	0.71	0.6
				in.lb	15	12	9.7	7	6.3	5.3
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	25	25	25	25	22	22
				in.lb/arcmin	221	221	221	221	195	195
Max. axial force [c)]			F_{2AMax}	*N*	3500					
				lb_f	788					
Max. tilting moment			M_{2KMax}	*Nm*	134					
				in.lb	1186					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	9.4					
				lb_m	21					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 64					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	$kgcm^2$	3.2	2	1.6	1.2	1	0.93
				10^{-3} $in.lb.s^2$	2.8	1.8	1.4	1.1	0.89	0.82
	G	24	J_1	$kgcm^2$	4	2.8	2.4	1.9	1.8	1.7
				10^{-3} $in.lb.s^2$	3.5	2.5	2.1	1.7	1.6	1.5
	H	28	J_1	$kgcm^2$	3.7	2.5	2.1	1.6	1.5	1.4
				10^{-3} $in.lb.s^2$	3.3	2.2	1.9	1.4	1.3	1.2
	I	32	J_1	$kgcm^2$	7.7	6.6	6.1	5.7	5.6	5.5
				10^{-3} $in.lb.s^2$	6.8	5.8	5.4	5	5	4.9
	K	38	J_1	$kgcm^2$	8.9	7.8	7.3	6.9	6.7	6.6
				10^{-3} $in.lb.s^2$	7.9	6.9	6.5	6.1	5.9	5.8

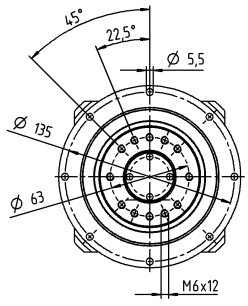
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

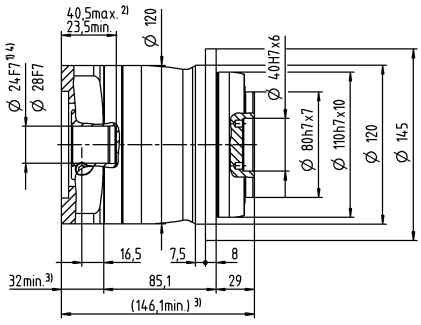
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

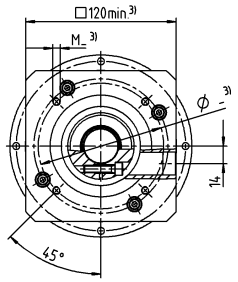
1-stage

Motor shaft diameter [mm]

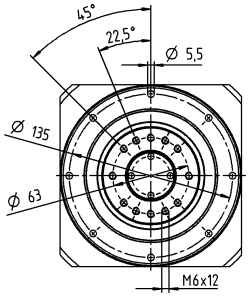
up to 24/28 [4] (G [5]/H) clamping hub diameter

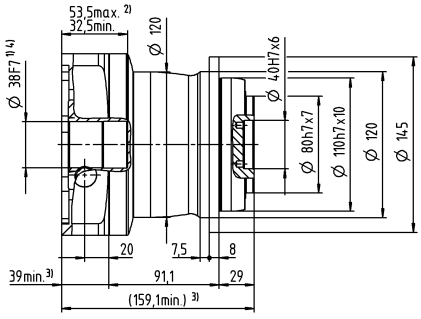


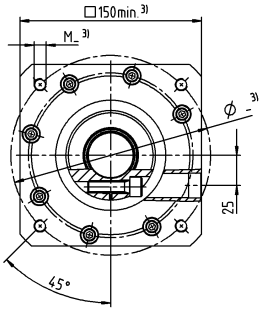




up to 38 [4] (K) clamping hub diameter







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[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					2-stage														
Ratio			**i**		**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b)]			T_{2a}	*Nm*	320	320	320	365	365	365	365	320	365	365	365	365	352	365	352
				in.lb	2832	2832	2832	3231	3231	3231	3231	2832	3231	3231	3231	3231	3115	3231	3115
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	200	200	255	255	250	255	200	255	250	255	250	220	250	220
				in.lb	1770	1770	1770	2257	2257	2213	2257	1770	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3100	3300	3400	3300	3400	3400	3600	3900	3700	3600	3900	3900	3700	3900	3900
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.6	0.48	0.4	0.38	0.33	0.28	0.26	0.25	0.24	0.23	0.21	0.19	0.17	0.16	0.15
				in.lb	5.3	4.2	3.5	3.4	2.9	2.5	2.3	2.2	2.1	2	1.9	1.7	1.5	1.4	1.3
Max. backlash			j_t	*arcmin*	≤ 10														
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	25	25	25	25	25	25	25	25	25	25	25	25	22	25	22
				in.lb/arcmin	221	221	221	221	221	221	221	221	221	221	221	221	195	221	195
Max. axial force [c)]			F_{2AMax}	*N*	3500														
				lb_f	788														
Max. tilting moment			M_{2KMax}	*Nm*	134														
				in.lb	1186														
Efficiency at full load			η	*%*	95														
Service life			L_h	*h*	> 20000														
Weight (incl. standard adapter plate)			m	*kg*	9.8														
				lb_m	22														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61														
Max. permitted housing temperature				*°C*	+90														
				°F	+194														
Ambient temperature				*°C*	–15 to +40														
				°F	+5 to +104														
Lubrication					Lubricated for life														
Direction of rotation					In- and output same direction														
Protection class					IP 64														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.68	0.63	0.62	0.45	0.44	0.37	0.38	0.52	0.38	0.32	0.37	0.31	0.26	0.27	0.24
				10^{-3} in.lb.s²	0.6	0.56	0.55	0.4	0.39	0.33	0.34	0.46	0.34	0.28	0.33	0.27	0.23	0.24	0.21
	D	16	J_1	*kgcm²*	0.82	0.78	0.77	0.6	0.58	0.51	0.51	0.67	0.53	0.45	0.52	0.46	0.4	0.41	0.39
				10^{-3} in.lb.s²	0.73	0.69	0.68	0.53	0.51	0.45	0.45	0.59	0.47	0.4	0.46	0.41	0.35	0.36	0.35
	E	19	J_1	*kgcm²*	0.91	0.87	0.86	0.69	0.67	0.6	0.61	0.76	0.61	0.55	0.6	0.55	0.49	0.5	0.48
				10^{-3} in.lb.s²	0.81	0.77	0.76	0.61	0.59	0.53	0.54	0.67	0.54	0.49	0.53	0.49	0.43	0.44	0.42
	G	24	J_1	*kgcm²*	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.8	1.7	1.6	1.6	1.6	1.5	1.5	1.5
				10^{-3} in.lb.s²	1.7	1.7	1.7	1.5	1.5	1.4	1.4	1.6	1.5	1.4	1.4	1.4	1.3	1.3	1.3
	H	28	J_1	*kgcm²*	1.7	1.6	1.6	1.4	1.4	1.3	1.4	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2
				10^{-3} in.lb.s²	1.5	1.4	1.4	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1

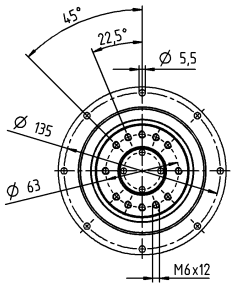
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

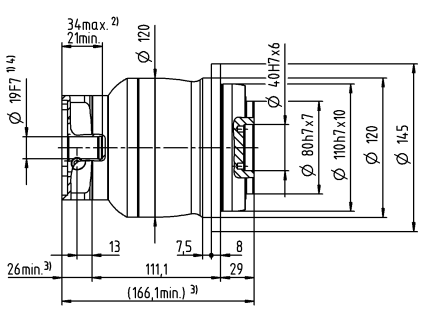
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures

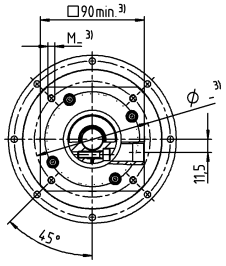
2-stage

Motor shaft diameter [mm]

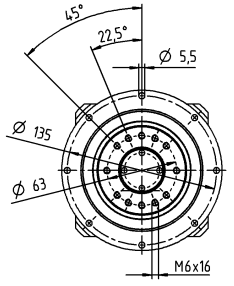
up to 19 [4] (E) [5]
clamping hub
diameter

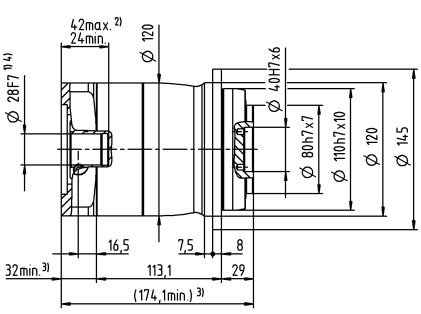


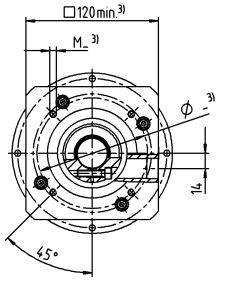




up to 28 [4] (H)
clamping hub
diameter







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[5] Standard clamping hub diameter

					1-stage			2-stage				
Ratio			**i**		**5**	**8**	**10**	**25**	**32**	**50**	**64**	**100**
Max. torque [a) b)]			T_{2a}	*Nm*	700	640	640	700	640	700	640	640
				in.lb	6196	5665	5665	6196	5665	6196	5665	5665
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	500	400	400	500	400	500	400	400
				in.lb	4425	3540	3540	4425	3540	4425	3540	3540
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1000	1000	1000	1000	1000	1000	1000	1000
				in.lb	8851	8851	8851	8851	8851	8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2000	2200	2300	2600	2500	3000	2900	3000
Max. input speed			n_{1Max}	*rpm*	4000	4000	4000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.5	1.1	0.9	0.39	0.34	0.27	0.24	0.21
				in.lb	13	9.7	8	3.5	3	2.4	2.1	1.9
Max. backlash			j_t	*arcmin*	≤ 8			≤ 10				
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	55	44	44	55	44	55	44	44
				in.lb/arcmin	487	389	389	487	389	487	389	389
Max. axial force [c)]			F_{2AMax}	*N*	3800			3800				
				lb_f	855			855				
Max. tilting moment			M_{2KMax}	*Nm*	256			256				
				in.lb	2266			2266				
Efficiency at full load			η	%	97			95				
Service life			L_h	*h*	> 20000			> 20000				
Weight (incl. standard adapter plate)			*m*	*kg*	19			20				
				lb_m	42			44				
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 68			≤ 65				
Max. permitted housing temperature				*°C*	+90			+90				
				°F	+194			+194				
Ambient temperature				*°C*	–15 to +40			–15 to +40				
				°F	+5 to +104			+5 to +104				
Lubrication					Lubricated for life							
Direction of rotation					In- and output same direction							
Protection class					IP 64							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	–	–	–	1.3	1.1	1.1	0.88	0.83
				10^{-3} *in.lb.s²*	–	–	–	1.2	0.97	0.97	0.78	0.73
	G	24	J_1	*kgcm²*	–	–	–	2	1.9	1.8	1.7	1.6
				10^{-3} *in.lb.s²*	–	–	–	1.8	1.7	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	–	–	–	1.8	1.6	1.6	1.4	1.3
				10^{-3} *in.lb.s²*	–	–	–	1.6	1.4	1.4	1.2	1.2
	I	32	J_1	*kgcm²*	–	–	–	5.8	5.7	5.6	5.4	5.4
				10^{-3} *in.lb.s²*	–	–	–	5.1	5	5	4.8	4.8
	K	38	J_1	*kgcm²*	9.8	7.8	7.4	7	6.9	6.8	6.6	6.5
				10^{-3} *in.lb.s²*	8.7	6.9	6.5	6.2	6.1	6	5.8	5.8

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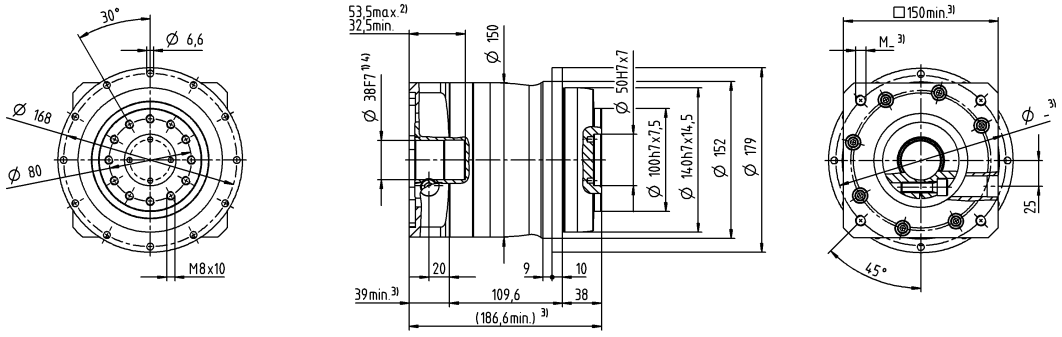
Motor shaft diameter [mm]

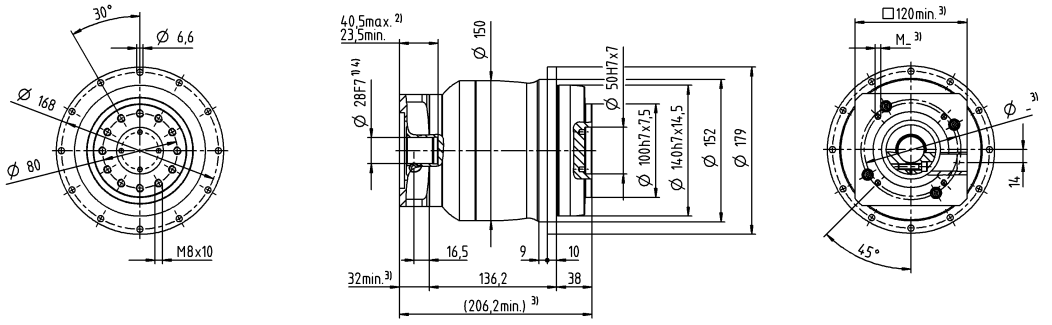
1-stage

up to 38 [4] (K) [5] clamping hub diameter

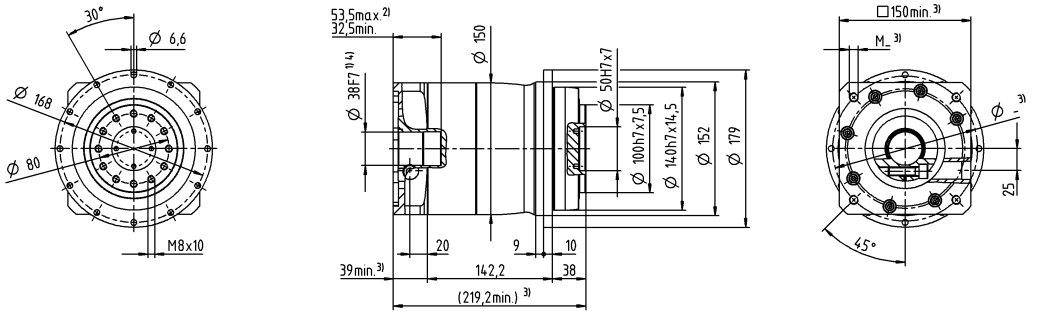


2-stage

up to 28 [4] (H) [5] clamping hub diameter



up to 38 [4] (K) clamping hub diameter



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[5] Standard clamping hub diameter

					1-stage		2-stage						
Ratio		**i**			**3**	**4**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b)]		T_{2a}	*Nm*		62	62	62	62	62	62	62	62	62
			in.lb		549	549	549	549	549	549	549	549	549
Max. acceleration torque (max. 1000 cycles per hour)		T_{2B}	*Nm*		55	42	39	42	42	42	42	39	42
			in.lb		487	372	345	372	372	372	372	345	372
Emergency stop torque [a) b)] (permitted 1000 times during the service life of the gearbox)		T_{2Not}	*Nm*		75	75	75	75	75	75	75	75	75
			in.lb		664	664	664	664	664	664	664	664	664
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)		n_{1N}	*rpm*		3300	3500	3800	4000	3800	4000	4300	4600	4600
Max. input speed		n_{1Max}	*rpm*		8000	8000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)		T_{012}	*Nm*		0.25	0.2	0.08	0.07	0.06	0.06	0.05	0.05	0.04
			in.lb		2.2	1.8	0.71	0.62	0.53	0.53	0.44	0.44	0.35
Max. backlash		j_t	*arcmin*		≤ 8		≤ 10						
Torsional rigidity [b)]		C_{t21}	*Nm/arcmin*		4	4	4	4	4	4	4	4	4
			in.lb/arcmin		35	35	35	35	35	35	35	35	35
Max. axial force [c)]		F_{2AMax}	*N*		1380		1380						
			lb_f		311		311						
Max. tilting moment		M_{2KMax}	*Nm*		42		42						
			in.lb		372		372						
Efficiency at full load		η	*%*		97		95						
Service life		L_h	*h*		> 20000		> 20000						
Weight (incl. standard adapter plate)		m	*kg*		2		2.1						
			lb_m		4.4		4.6						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)		L_{PA}	*dB(A)*		≤ 59		≤ 58						
Max. permitted housing temperature			*°C*		+90		+90						
			°F		+194		+194						
Ambient temperature			*°C*		–15 to +40		–15 to +40						
			°F		+5 to +104		+5 to +104						
Lubrication					Lubricated for life								
Direction of rotation					In- and output same direction								
Protection class					IP 64								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	A	9	J_1	*kgcm²*	0.31	0.23	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	0.27	0.2	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	B	11	J_1	*kgcm²*	0.33	0.24	0.06	0.06	0.05	0.05	0.05	0.05	0.05
				10^{-3} *in.lb.s²*	0.29	0.21	0.05	0.05	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.41	0.32	0.15	0.14	0.14	0.14	0.13	0.14	0.13
				10^{-3} *in.lb.s²*	0.36	0.28	0.13	0.12	0.12	0.12	0.12	0.12	0.12
	D	16	J_1	*kgcm²*	0.53	0.45	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.47	0.4	–	–	–	–	–	–	–
	E	19	J_1	*kgcm²*	0.62	0.53	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.55	0.47	–	–	–	–	–	–	–

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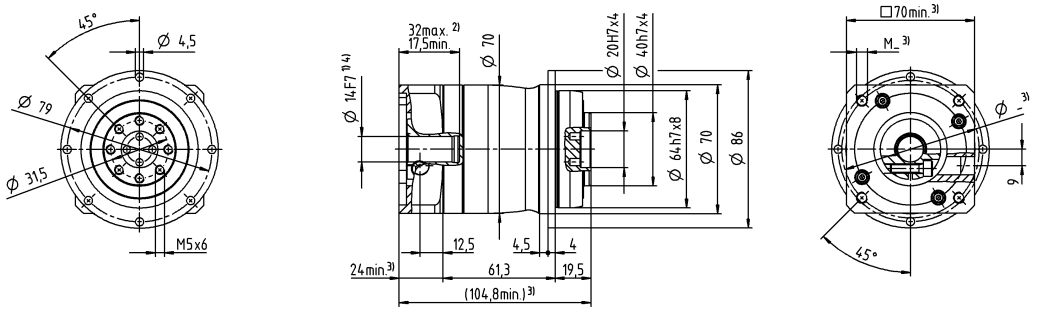
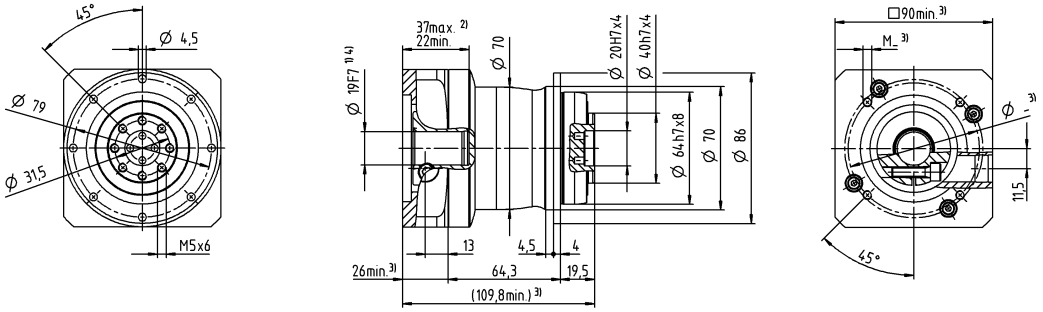
Motor shaft diameter [mm]

1-stage

up to 14 [4] (C) [5] clamping hub diameter

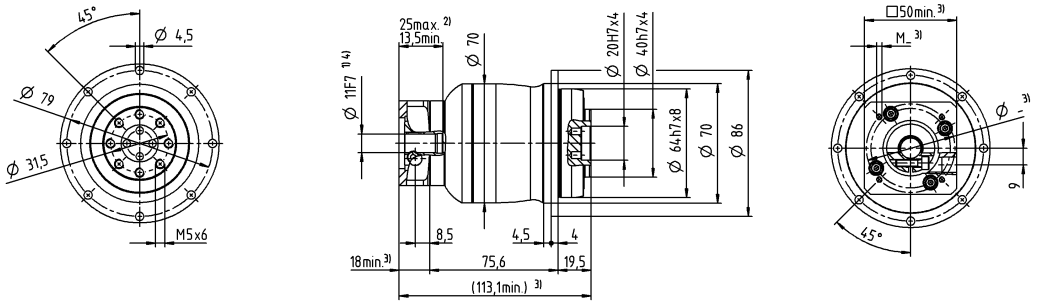


up to 19 [4] (E) clamping hub diameter

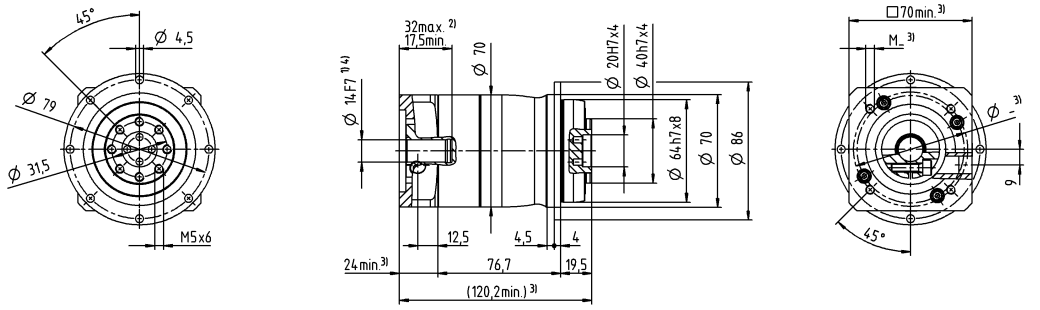


2-stage

up to 11 [4] (B) [5] clamping hub diameter



up to 14 [4] (C) clamping hub diameter



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a] [b]			T_{2a}	*Nm*	185	185	185	185	185	185	185	185	168	185
				in.lb	1637	1637	1637	1637	1637	1637	1637	1637	1487	1637
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	125	115	125	125	120	115	115	115	105	115
				in.lb	1106	1018	1106	1106	1062	1018	1018	1018	929	1018
Emergency stop torque [a] [b] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	3100	3300	3300	3500	3700	3500	3700	4000	4300	4300
Max. input speed			n_{1Max}	*rpm*	7000	7000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.43	0.35	0.16	0.13	0.12	0.11	0.1	0.09	0.08	0.08
				in.lb	3.8	3.1	1.4	1.2	1.1	0.97	0.89	0.8	0.71	0.71
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b]			C_{t21}	*Nm/arcmin*	12	12	12	12	12	12	12	12	12	12
				in.lb/arcmin	106	106	106	106	106	106	106	106	106	106
Max. axial force [c]			F_{2AMax}	*N*	1900		1900							
				lb_f	428		428							
Max. tilting moment			M_{2KMax}	*Nm*	79		79							
				in.lb	699		699							
Efficiency at full load			η	%	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	4.4		4.7							
				lb_m	9.7		10							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61		≤ 59							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 64									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	$kgcm^2$	–	–	0.28	0.23	0.22	0.22	0.21	0.20	0.19	0.19
				10^{-3} $in.lb.s^2$	–	–	0.25	0.2	0.19	0.19	0.19	0.18	0.17	0.17
	B	11	J_1	$kgcm^2$	–	–	0.3	0.25	0.23	0.24	0.23	0.21	0.21	0.21
				10^{-3} $in.lb.s^2$	–	–	0.27	0.22	0.2	0.21	0.2	0.19	0.19	0.19
	C	14	J_1	$kgcm^2$	0.75	0.57	0.37	0.32	0.31	0.31	0.3	0.29	0.29	0.28
				10^{-3} $in.lb.s^2$	0.66	0.5	0.33	0.28	0.27	0.27	0.27	0.26	0.26	0.25
	D	16	J_1	$kgcm^2$	0.9	0.72	0.5	0.45	0.44	0.44	0.43	0.42	0.41	0.41
				10^{-3} $in.lb.s^2$	0.8	0.64	0.44	0.4	0.39	0.39	0.38	0.37	0.36	0.36
	E	19	J_1	$kgcm^2$	0.99	0.8	0.58	0.53	0.52	0.52	0.51	0.5	0.5	0.49
				10^{-3} $in.lb.s^2$	0.88	0.71	0.51	0.47	0.46	0.46	0.45	0.44	0.44	0.43
	G	24	J_1	$kgcm^2$	2	1.8	–	–	–	–	–	–	–	–
				10^{-3} $in.lb.s^2$	1.8	1.6	–	–	–	–	–	–	–	–
	H	28	J_1	$kgcm^2$	1.7	1.5	–	–	–	–	–	–	–	–
				10^{-3} $in.lb.s^2$	1.5	1.3	–	–	–	–	–	–	–	–

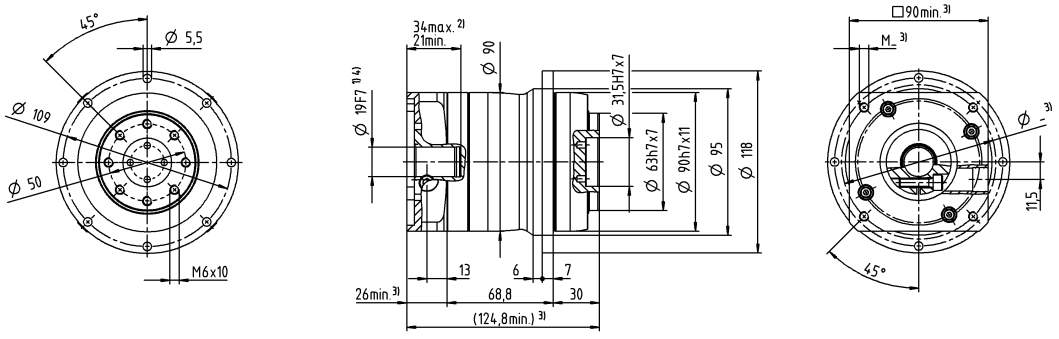
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a] Valid for torque transmission only
[b] Valid for standard clamping hub diameter
[c] Refers to center of the output shaft or flange
[d] Please reduce input speed at higher ambient temperatures

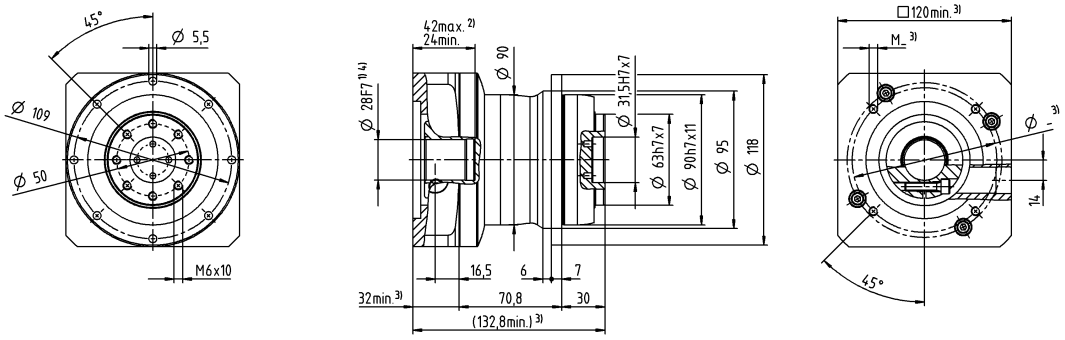
Motor shaft diameter [mm]

1-stage

up to 19 [4] (E) [5] clamping hub diameter

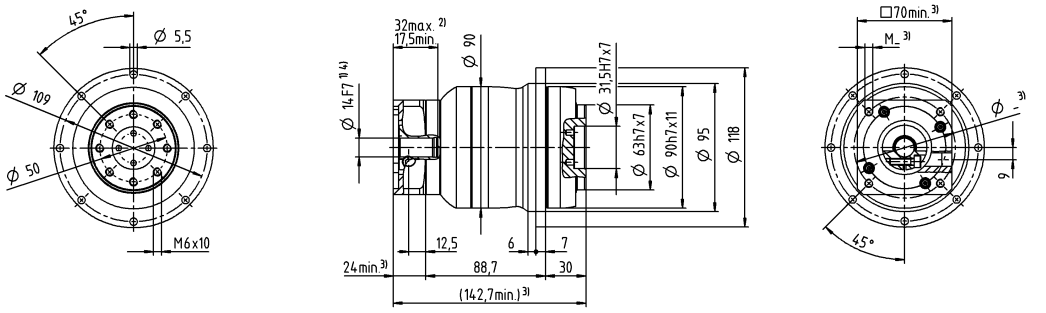


up to 28 [4] (H) clamping hub diameter

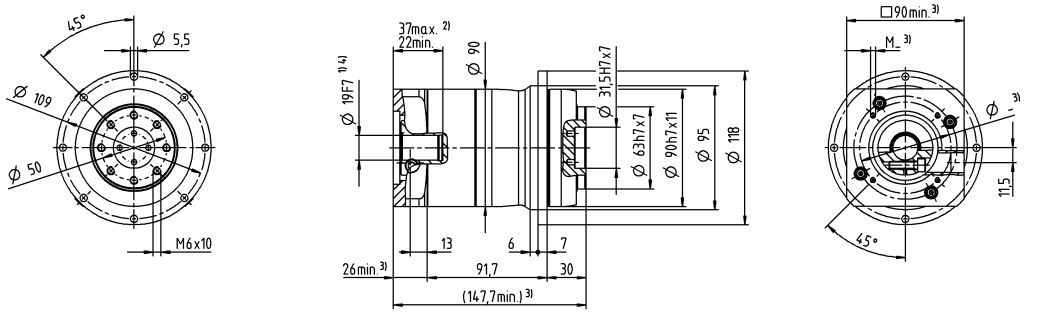


2-stage

up to 14 [4] (C) [5] clamping hub diameter



up to 19 [4] (E) clamping hub diameter



Non-tolerated dimensions are nominal dimensions
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a] [b]			T_{2a}	*Nm*	380	380	380	380	380	380	380	380	370	380
				in.lb	3363	3363	3363	3363	3363	3363	3363	3363	3275	3363
Max. acceleration torque (max. 1000 cycles per hour)			T_{2B}	*Nm*	305	305	305	305	300	305	305	305	270	305
				in.lb	2699	2699	2699	2699	2655	2699	2699	2699	2390	2699
Emergency stop torque [a] [b] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	480	480	480	480	480	480	480	480	480	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248
Permitted average input speed [d] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2300	2500	3100	3300	3400	3300	3400	3600	3900	3900
Max. input speed			n_{1Max}	*rpm*	6000	6000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.7	1.3	0.6	0.48	0.4	0.38	0.33	0.26	0.25	0.21
				in.lb	15	12	5.3	4.2	3.5	3.4	2.9	2.3	2.2	1.9
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b]			C_{t21}	*Nm/arcmin*	30	30	30	30	30	30	30	30	30	30
				in.lb/arcmin	266	266	266	266	266	266	266	266	266	266
Max. axial force [c]			F_{2AMax}	*N*	3500		3500							
				lb_f	788		788							
Max. tilting moment			M_{2KMax}	*Nm*	134		134							
				in.lb	1186		1186							
Efficiency at full load			η	%	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	9.4		9.8							
				lb_m	21		22							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65		≤ 61							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 64									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	–	–	0.68	0.63	0.62	0.45	0.44	0.38	0.52	0.37
				10^{-3} in.lb.s²	–	–	0.6	0.56	0.55	0.4	0.39	0.34	0.46	0.33
	D	16	J_1	*kgcm²*	–	–	0.82	0.78	0.77	0.6	0.58	0.51	0.67	0.52
				10^{-3} in.lb.s²	–	–	0.73	0.69	0.68	0.53	0.51	0.45	0.59	0.46
	E	19	J_1	*kgcm²*	3.2	2	0.91	0.87	0.86	0.69	0.67	0.61	0.76	0.6
				10^{-3} in.lb.s²	2.8	1.8	0.81	0.77	0.76	0.61	0.59	0.54	0.67	0.53
	G	24	J_1	*kgcm²*	4	2.8	1.9	1.9	1.9	1.7	1.7	1.6	1.8	1.6
				10^{-3} in.lb.s²	3.5	2.5	1.7	1.7	1.7	1.5	1.5	1.4	1.6	1.4
	H	28	J_1	*kgcm²*	3.7	2.5	1.7	1.6	1.6	1.4	1.4	1.4	1.5	1.3
				10^{-3} in.lb.s²	3.3	2.2	1.5	1.4	1.4	1.2	1.2	1.2	1.3	1.2
	I	32	J_1	*kgcm²*	7.7	6.6	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	6.8	5.8	–	–	–	–	–	–	–	–
	K	38	J_1	*kgcm²*	8.9	7.8	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	7.9	6.9	–	–	–	–	–	–	–	–

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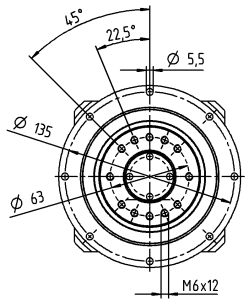
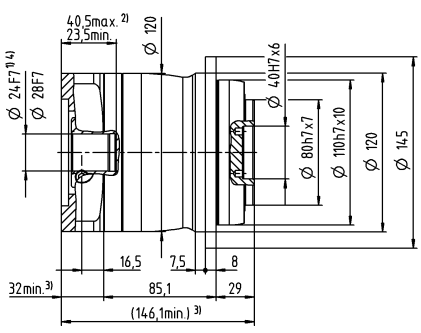
[a] Valid for torque transmission only
[b] Valid for standard clamping hub diameter
[c] Refers to center of the output shaft or flange
[d] Please reduce input speed at higher ambient temperatures

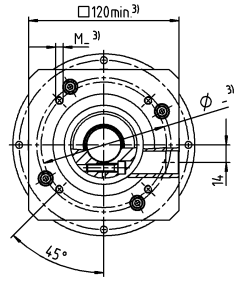
Motor shaft diameter [mm]

1-stage

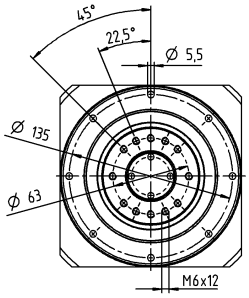
up to 24/28 [4] (G [5]/H) clamping hub diameter

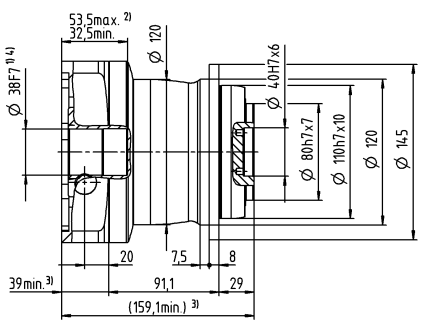


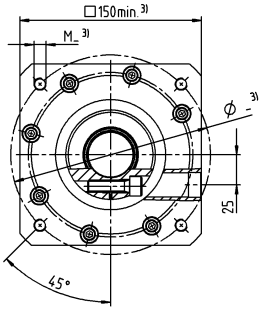




up to 38 [4] (K) clamping hub diameter

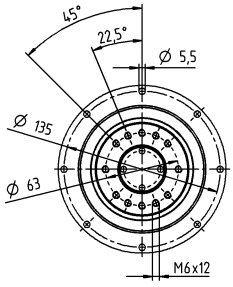


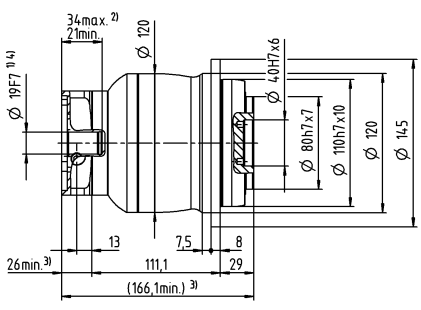


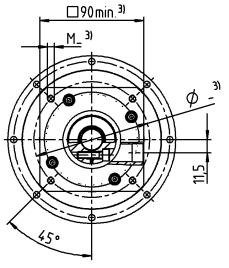


2-stage

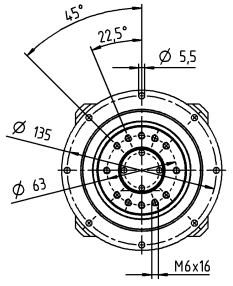
up to 19 [4] (E) [5] clamping hub diameter

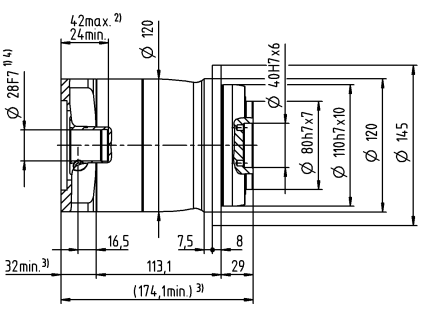


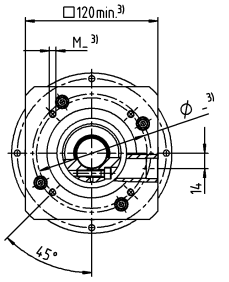




up to 28 [4] (H) clamping hub diameter







Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	51	56	64	64	56	56
				in.lb	451	496	566	566	496	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	32	35	40	40	35	35
				in.lb	283	310	354	354	310	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	80	80	80	80	80	80
				in.lb	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2600	2800	2900	3400	3400	3600
Max. input speed			n_{1Max}	*rpm*	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	0.98	0.78	0.66	0.52	0.48	0.42
				in.lb	8.7	6.9	5.8	4.6	4.2	3.7
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	3.3	3.3	3.3	3.3	2.8	2.8
				in.lb/arcmin	29	29	29	29	25	25
Max. axial force [c)]			F_{2AMax}	*N*	2400					
				lb_f	540					
Max. lateral force [c)]			F_{2QMax}	*N*	2800					
				lb_f	630					
Max. tilting moment			M_{2KMax}	*Nm*	152					
				in.lb	1345					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	1.9					
				lb_m	4.2					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 59					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA016.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.25	0.19	0.17	0.14	0.14	0.13
				10^{-3} *in.lb.s²*	0.22	0.17	0.15	0.12	0.12	0.12
	B	11	J_1	*kgcm²*	0.26	0.21	0.18	0.16	0.16	0.15
				10^{-3} *in.lb.s²*	0.23	0.19	0.16	0.14	0.14	0.13
	C	14	J_1	*kgcm²*	0.34	0.28	0.26	0.24	0.23	0.23
				10^{-3} *in.lb.s²*	0.3	0.25	0.23	0.21	0.2	0.2
	D	16	J_1	*kgcm²*	0.47	0.41	0.39	0.36	0.36	0.35
				10^{-3} *in.lb.s²*	0.42	0.36	0.35	0.32	0.32	0.31
	E	19	J_1	*kgcm²*	0.55	0.49	0.47	0.45	0.44	0.44
				10^{-3} *in.lb.s²*	0.49	0.43	0.42	0.4	0.39	0.39

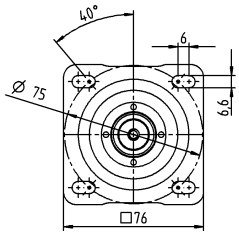
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

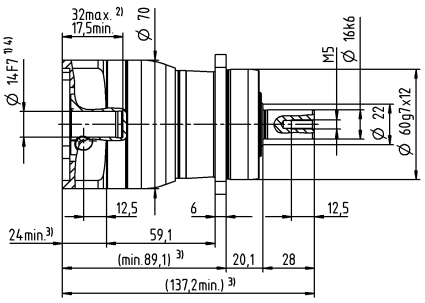
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

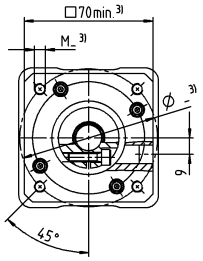
1-stage

Motor shaft diameter [mm]

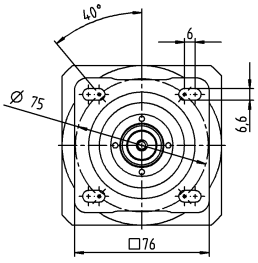
up to 14 [4] (C) [5] clamping hub diameter

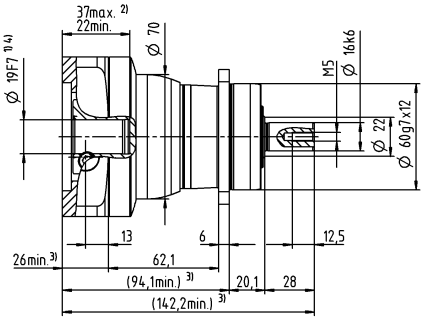


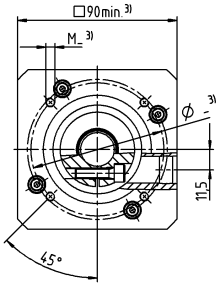




up to 19 [4] (E) clamping hub diameter

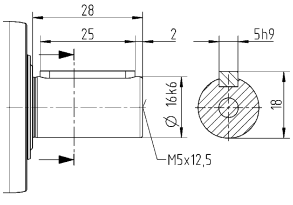




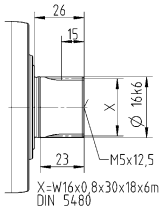


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage													
Ratio	**i**			**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		51	51	56	56	64	56	51	56	64	56	64	56	64	56
		in.lb		451	451	496	496	566	496	451	496	566	496	566	496	566	496
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		32	32	35	35	40	35	32	35	40	35	40	35	40	35
		in.lb		283	283	310	310	354	310	283	310	354	310	354	310	354	310
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		80	80	80	80	80	80	80	80	80	80	80	80	80	80
		in.lb		708	708	708	708	708	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		3800	4000	3800	4000	4000	4300	4600	4400	4300	4600	4600	4400	4600	4600
Max. input speed	n_{1Max}	*rpm*		10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.34	0.29	0.29	0.25	0.23	0.21	0.21	0.2	0.2	0.19	0.17	0.17	0.16	0.15
		in.lb		3	2.6	2.6	2.2	2	1.9	1.9	1.8	1.8	1.7	1.5	1.5	1.4	1.3
Max. backlash	j_t	*arcmin*		≤ 10													
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	3.3	2.8
		in.lb/arcmin		29	29	29	29	29	29	29	29	29	29	29	25	29	25
Max. axial force [c)]	F_{2AMax}	*N*		2400													
		lb_f		540													
Max. lateral force [c)]	F_{2QMax}	*N*		2800													
		lb_f		630													
Max. tilting moment	M_{2KMax}	*Nm*		152													
		in.lb		1345													
Efficiency at full load	η	*%*		95													
Service life	L_h	*h*		> 20000													
Weight (incl. standard adapter plate)	m	*kg*		2													
		lb_m		4.4													
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 58													
Max. permitted housing temperature		*°C*		+90													
		°F		+194													
Ambient temperature		*°C*		–15 to +40													
		°F		+5 to +104													
Lubrication				Lubricated for life													
Direction of rotation				In- and output same direction													
Protection class				IP 65													
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X													
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000													
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	A	9	J_1	*kgcm²*	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
				10^{-3} in.lb.s²	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
	B	11	J_1	*kgcm²*	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04
				10^{-3} in.lb.s²	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13
				10^{-3} in.lb.s²	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

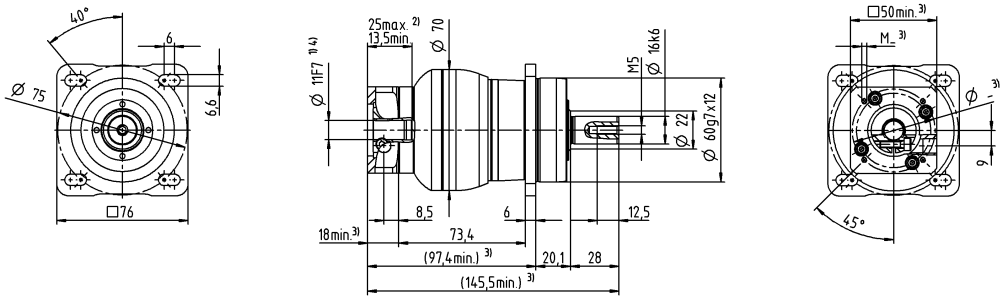
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

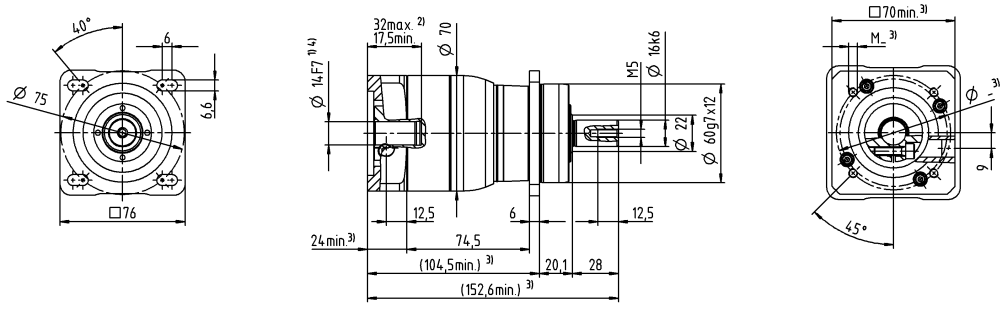
2-stage

Motor shaft diameter [mm]

up to 11 [4] (B) [5] clamping hub diameter

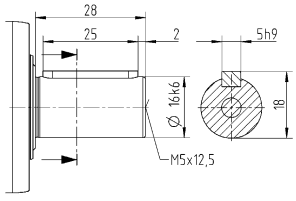


up to 14 [4] (C) clamping hub diameter

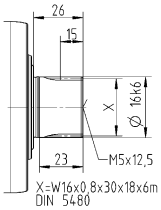


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	128	152	160	160	144	144
				in.lb	1133	1345	1416	1416	1275	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	80	95	100	100	90	90
				in.lb	708	841	885	885	797	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2400	2600	2700	3000	3100	3300
Max. input speed			n_{1Max}	*rpm*	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.9	1.6	1.4	1.1	1.1	0.96
				in.lb	17	14	12	9.7	9.7	8.5
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	9.5	9.5	9.5	9.5	8.5	8.5
				in.lb/arcmin	84	84	84	84	75	75
Max. axial force [c)]			F_{2AMax}	*N*	3350					
				lb_f	754					
Max. lateral force [c)]			F_{2QMax}	*N*	4200					
				lb_f	945					
Max. tilting moment			M_{2KMax}	*Nm*	236					
				in.lb	2089					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			m	*kg*	3.7					
				lb_m	8.2					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X					
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.58	0.47	0.38	0.3	0.28	0.26
				10^{-3} *in.lb.s²*	0.51	0.42	0.34	0.27	0.25	0.23
	D	16	J_1	*kgcm²*	0.73	0.62	0.53	0.43	0.42	0.4
				10^{-3} *in.lb.s²*	0.65	0.55	0.47	0.38	0.37	0.35
	E	19	J_1	*kgcm²*	0.81	0.71	0.61	0.53	0.51	0.49
				10^{-3} *in.lb.s²*	0.72	0.63	0.54	0.47	0.45	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	1.6	1.6	1.5	1.5
				10^{-3} *in.lb.s²*	1.6	1.5	1.4	1.4	1.3	1.3
	H	28	J_1	*kgcm²*	1.6	1.4	1.4	1.3	1.3	1.2
				10^{-3} *in.lb.s²*	1.4	1.2	1.2	1.2	1.2	1.1

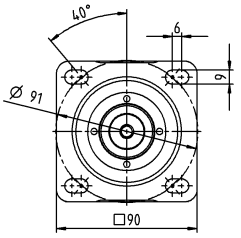
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

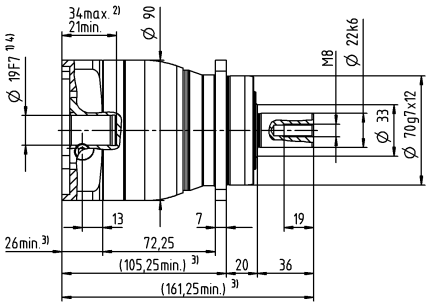
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

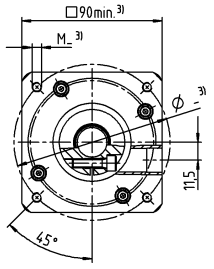
1-stage

Motor shaft diameter [mm]

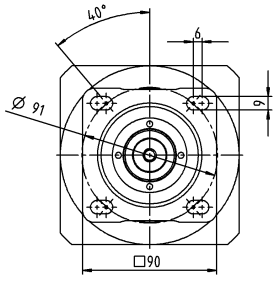
up to 19 [4] (E) [5] clamping hub diameter

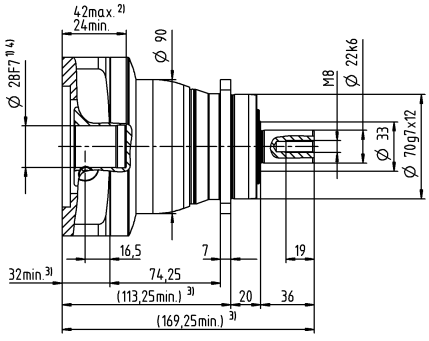


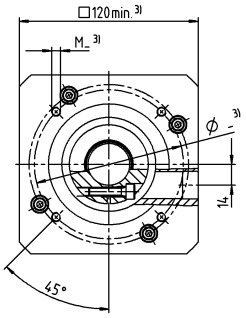




up to 28 [4] (H) clamping hub diameter

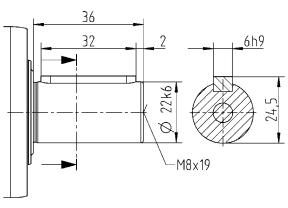




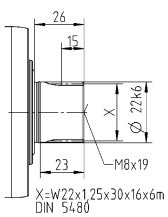


Other output variants

Shaft with key



Splined shaft (DIN 5480)



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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

NPR 025 MF 2-stage

				2-stage														
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		128	128	128	152	152	160	152	128	144	160	152	160	144	160	144
		in.lb		1133	1133	1133	1345	1345	1416	1345	1133	1275	1416	1345	1416	1275	1416	1275
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		80	80	80	95	95	100	95	80	90	100	95	100	90	100	90
		in.lb		708	708	708	841	841	885	841	708	797	885	841	885	797	885	797
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
		in.lb		1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2800	3500	3700	3500	3700	3700	4000	4300	4100	4000	4300	4300	4100	4300	4300
Max. input speed	n_{1Max}	*rpm*		8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		0.67	0.55	0.47	0.46	0.4	0.36	0.34	0.33	0.32	0.31	0.29	0.27	0.25	0.25	0.23
		in.lb		5.9	4.9	4.2	4.1	3.5	3.2	3	2.9	2.8	2.7	2.6	2.4	2.2	2.2	2
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		10	10	10	10	10	9.5	10	10	10	9.5	10	9.5	8.5	9.5	8.5
		in.lb/arcmin		89	89	89	89	89	84	89	89	89	84	89	84	75	84	75
Max. axial force [c)]	F_{2AMax}	*N*		3350														
		lb_f		754														
Max. lateral force [c)]	F_{2QMax}	*N*		4200														
		lb_f		945														
Max. tilting moment	M_{2KMax}	*Nm*		236														
		in.lb		2089														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	*m*	*kg*		4														
		lb_m		8.8														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 59														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA022.000-X														
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	0.26	0.22	0.21	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
				10^{-3} in.lb.s²	0.23	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	0.28	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
				10^{-3} in.lb.s²	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.35	0.31	0.3	0.3	0.3	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
				10^{-3} in.lb.s²	0.31	0.27	0.27	0.27	0.27	0.26	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	D	16	J_1	*kgcm²*	0.48	0.44	0.43	0.43	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.42	0.39	0.38	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49
				10^{-3} in.lb.s²	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43

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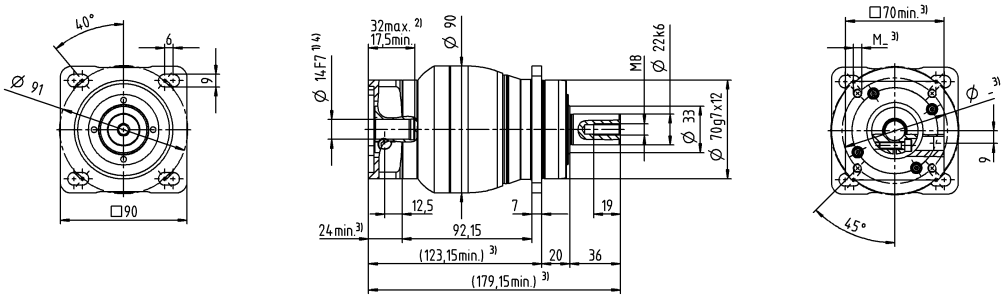
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

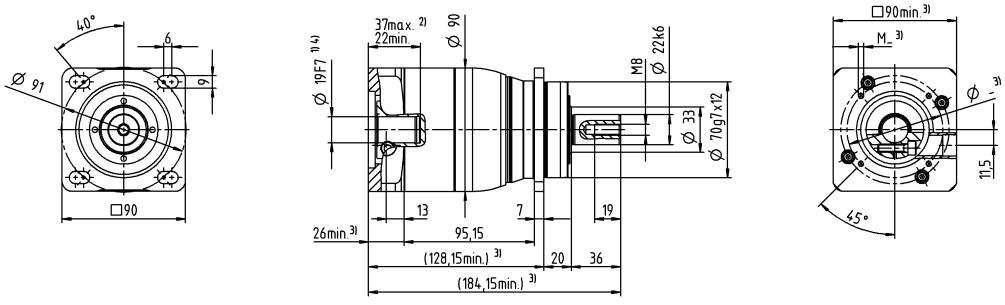
2-stage

Motor shaft diameter [mm]

up to 14 [4] (C) [5] clamping hub diameter

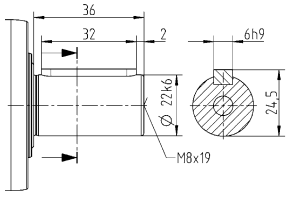


up to 19 [4] (E) clamping hub diameter

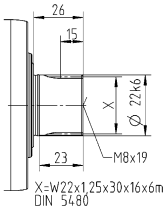


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage					
Ratio			**i**		**3**	**4**	**5**	**7**	**8**	**10**
Max. torque [a) b) e)]			T_{2a}	*Nm*	320	408	400	400	352	352
				in.lb	2832	3611	3540	3540	3115	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	200	255	250	250	220	220
				in.lb	1770	2257	2213	2213	1947	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	1800	2000	2000	2300	2400	2500
Max. input speed			n_{1Max}	*rpm*	6000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.5	2.8	2.4	1.9	1.8	1.6
				in.lb	31	25	21	17	16	14
Max. backlash			j_t	*arcmin*	≤ 8					
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	25	25	25	25	22	22
				in.lb/arcmin	221	221	221	221	195	195
Max. axial force [c)]			F_{2AMax}	*N*	5650					
				lb_f	1271					
Max. lateral force [c)]			F_{2QMax}	*N*	6600					
				lb_f	1485					
Max. tilting moment			M_{2KMax}	*Nm*	487					
				in.lb	4310					
Efficiency at full load			η	%	97					
Service life			L_h	*h*	> 20000					
Weight (incl. standard adapter plate)			*m*	*kg*	8.6					
				lb_m	19					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65					
Max. permitted housing temperature				*°C*	+90					
				°F	+194					
Ambient temperature				*°C*	–15 to +40					
				°F	+5 to +104					
Lubrication					Lubricated for life					
Direction of rotation					In- and output same direction					
Protection class					IP 65					
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X					
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	*kgcm²*	2.5	1.7	1.3	1	0.94	0.87
				10^{-3} *in.lb.s²*	2.2	1.5	1.2	0.89	0.83	0.77
	G	24	J_1	*kgcm²*	3.3	2.4	2.1	1.8	1.7	1.6
				10^{-3} *in.lb.s²*	2.9	2.1	1.9	1.6	1.5	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.8	1.5	1.4	1.4
				10^{-3} *in.lb.s²*	2.7	1.9	1.6	1.3	1.2	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	5.9	5.6	5.5	5.4
				10^{-3} *in.lb.s²*	6.3	5.5	5.2	5	4.9	4.8
	K	38	J_1	*kgcm²*	8.3	7.4	7.1	6.7	6.6	6.6
				10^{-3} *in.lb.s²*	7.3	6.5	6.3	5.9	5.8	5.8

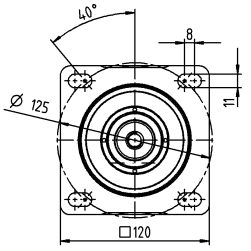
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

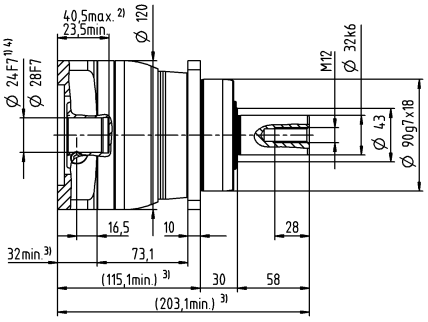
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

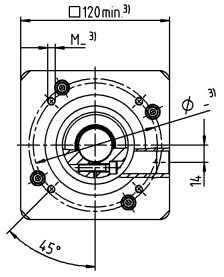
1-stage

Motor shaft diameter [mm]

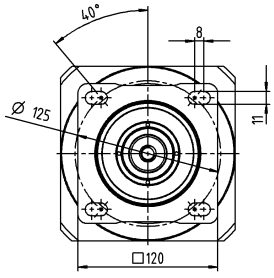
up to 24/28 [4] (G [5]/H) clamping hub diameter

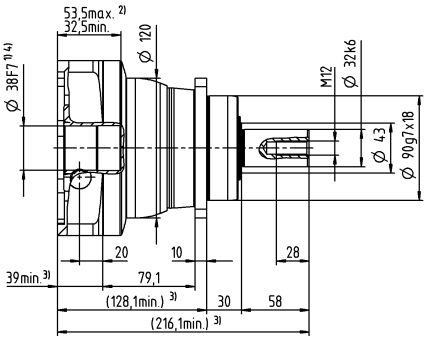


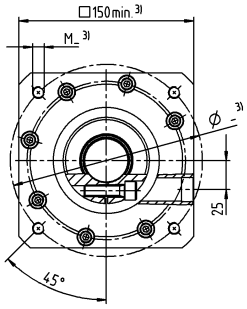




up to 38 [4] (K) clamping hub diameter

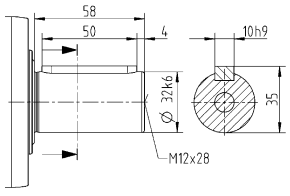




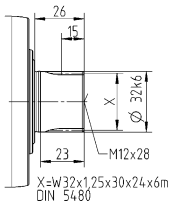


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				2-stage														
Ratio	**i**			**9**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**32**	**35**	**40**	**50**	**64**	**70**	**100**
Max. torque [a) b) e)]	T_{2a}	*Nm*		320	320	320	408	408	400	408	320	408	400	408	400	352	400	352
		in.lb		2832	2832	2832	3611	3611	3540	3611	2832	3611	3540	3611	3540	3115	3540	3115
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}	*Nm*		200	200	200	255	255	250	255	200	255	250	255	250	220	250	220
		in.lb		1770	1770	1770	2257	2257	2213	2257	1770	2257	2213	2257	2213	1947	2213	1947
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
		in.lb		4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}	*rpm*		2600	3300	3400	3300	3400	3400	3600	3900	3700	3600	3900	3900	3700	3900	3900
Max. input speed	n_{1Max}	*rpm*		7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}	*Nm*		1.7	1.4	1.2	1.2	1.1	1	0.93	0.88	0.88	0.87	0.81	0.77	0.75	0.72	0.68
		in.lb		15	12	11	11	9.7	8.9	8.2	7.8	7.8	7.7	7.2	6.8	6.6	6.4	6
Max. backlash	j_t	*arcmin*		≤ 10														
Torsional rigidity [b)]	C_{t21}	*Nm/arcmin*		25	25	25	25	25	25	25	25	25	25	25	25	22	25	22
		in.lb/arcmin		221	221	221	221	221	221	221	221	221	221	221	221	195	221	195
Max. axial force [c)]	F_{2AMax}	*N*		5650														
		lb_f		1271														
Max. lateral force [c)]	F_{2QMax}	*N*		6600														
		lb_f		1485														
Max. tilting moment	M_{2KMax}	*Nm*		487														
		in.lb		4310														
Efficiency at full load	η	*%*		95														
Service life	L_h	*h*		> 20000														
Weight (incl. standard adapter plate)	m	*kg*		9														
		lb_m		20														
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	*dB(A)*		≤ 61														
Max. permitted housing temperature		*°C*		+90														
		°F		+194														
Ambient temperature		*°C*		–15 to +40														
		°F		+5 to +104														
Lubrication				Lubricated for life														
Direction of rotation				In- and output same direction														
Protection class				IP 65														
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0150BA032.000-X														
Bore diameter of coupling on the application side			*mm*	X = 019.000 - 036.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	0.6	0.59	0.6	0.43	0.42	0.36	0.37	0.52	0.38	0.32	0.36	0.31	0.26	0.27	0.24
				10^{-3} in.lb.s²	0.53	0.52	0.53	0.38	0.37	0.32	0.33	0.46	0.34	0.28	0.32	0.27	0.23	0.24	0.21
	D	16	J_1	*kgcm²*	0.75	0.74	0.74	0.58	0.57	0.5	0.5	0.67	0.52	0.45	0.51	0.46	0.4	0.41	0.39
				10^{-3} in.lb.s²	0.66	0.65	0.65	0.51	0.5	0.44	0.44	0.59	0.46	0.4	0.45	0.41	0.35	0.36	0.35
	E	19	J_1	*kgcm²*	0.84	0.83	0.83	0.66	0.65	0.59	0.6	0.75	0.61	0.55	0.6	0.54	0.49	0.5	0.48
				10^{-3} in.lb.s²	0.74	0.73	0.73	0.58	0.58	0.52	0.53	0.66	0.54	0.49	0.53	0.48	0.43	0.44	0.42
	G	24	J_1	*kgcm²*	1.9	1.9	1.9	1.7	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.5	1.5	1.5
				10^{-3} in.lb.s²	1.7	1.6	1.7	1.5	1.5	1.4	1.5	1.6	1.5	1.4	1.4	1.4	1.3	1.4	1.3
	H	28	J_1	*kgcm²*	1.6	1.6	1.6	1.4	1.4	1.3	1.3	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2
				10^{-3} in.lb.s²	1.4	1.4	1.4	1.2	1.2	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.1	1.1	1.1

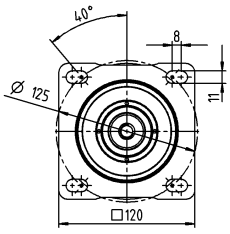
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

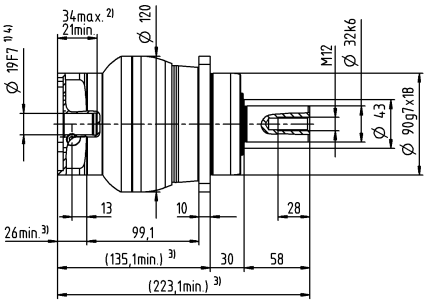
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

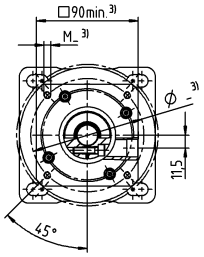
2-stage

Motor shaft diameter [mm]

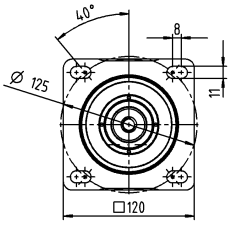
up to 19 [4] (E) [5] clamping hub diameter

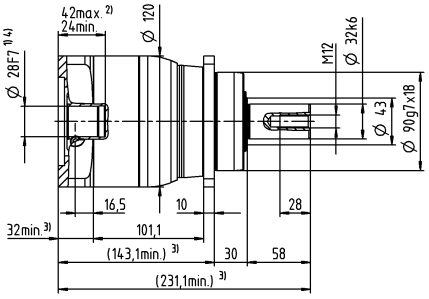


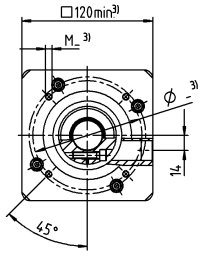




up to 28 [4] (H) clamping hub diameter

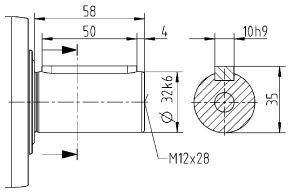




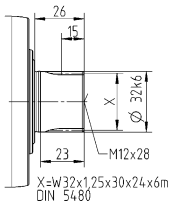


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage			2-stage				
Ratio			**i**		**5**	**8**	**10**	**25**	**32**	**50**	**64**	**100**
Max. torque [a) b) e)]			T_{2a}	*Nm*	800	640	640	700	640	700	640	640
				in.lb	7081	5665	5665	6196	5665	6196	5665	5665
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	500	400	400	500	400	500	400	400
				in.lb	4425	3540	3540	4425	3540	4425	3540	3540
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	1000	1000	1000	1000	1000	1000	1000	1000
				in.lb	8851	8851	8851	8851	8851	8851	8851	8851
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	1600	1800	1900	2600	2500	3000	2900	3000
Max. input speed			n_{1Max}	*rpm*	4000	4000	4000	6000	6000	6000	6000	6000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	4.6	3.1	2.6	1.6	1.5	1.2	1.1	0.97
				in.lb	41	27	23	14	13	11	9.7	8.6
Max. backlash			j_t	*arcmin*		≤ 8				≤ 10		
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	55	44	44	55	44	55	44	44
				in.lb/arcmin	487	389	389	487	389	487	389	389
Max. axial force [c)]			F_{2AMax}	*N*		9870				9870		
				lb_f		2221				2221		
Max. lateral force [c)]			F_{2QMax}	*N*		9900				9900		
				lb_f		2228				2228		
Max. tilting moment			M_{2KMax}	*Nm*		952				952		
				in.lb		8426				8426		
Efficiency at full load			η	*%*		97				95		
Service life			L_h	*h*		> 20000				> 20000		
Weight (incl. standard adapter plate)			*m*	*kg*		19				20		
				lb_m		42				44		
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*		≤ 68				≤ 65		
Max. permitted housing temperature				*°C*		+90				+90		
				°F		+194				+194		
Ambient temperature				*°C*		–15 to +40				–15 to +40		
				°F		+5 to +104				+5 to +104		
Lubrication						Lubricated for life						
Direction of rotation						In- and output same direction						
Protection class						IP 65						
Elastomer coupling (recommended product type – validate sizing with cymex®)						ELC-0300BA040.000-X						
Bore diameter of coupling on the application side				*mm*		X = 020.000 - 045.000						
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	$kgcm^2$	–	–	–	1.2	1.1	1	0.88	0.82
				10^{-3} $in.lb.s^2$	–	–	–	1.1	0.97	0.89	0.78	0.73
	G	24	J_1	$kgcm^2$	–	–	–	2	1.9	1.8	1.7	1.6
				10^{-3} $in.lb.s^2$	–	–	–	1.8	1.7	1.6	1.5	1.4
	H	28	J_1	$kgcm^2$	–	–	–	1.7	1.6	1.5	1.4	1.3
				10^{-3} $in.lb.s^2$	–	–	–	1.5	1.4	1.3	1.2	1.2
	I	32	J_1	$kgcm^2$	–	–	–	5.8	5.7	5.6	5.4	5.4
				10^{-3} $in.lb.s^2$	–	–	–	5.1	5	5	4.8	4.8
	K	38	J_1	$kgcm^2$	8.7	7.3	7.2	7	6.9	6.8	6.6	6.5
				10^{-3} $in.lb.s^2$	7.7	6.5	6.4	6.2	6.1	6	5.8	5.8

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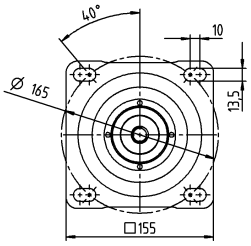
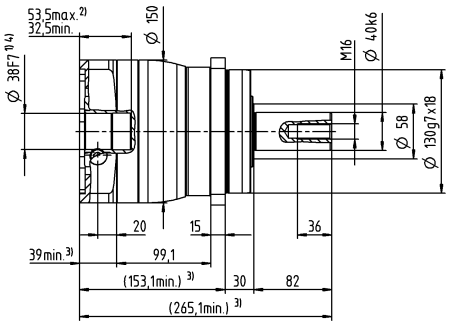
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

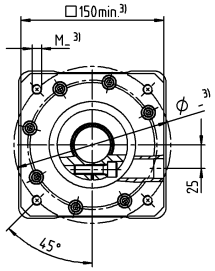
Motor shaft diameter [mm]

1-stage

up to 38 [4] (K) [5] clamping hub diameter

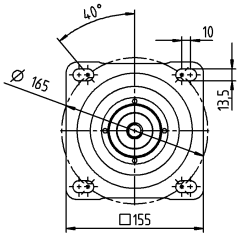


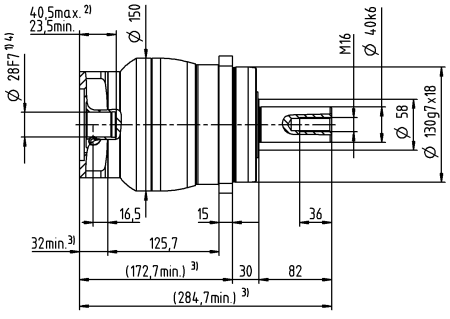


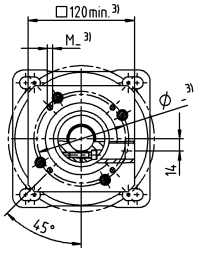


2-stage

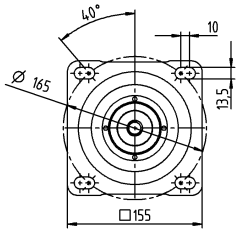
up to 28 [4] (H) [5] clamping hub diameter

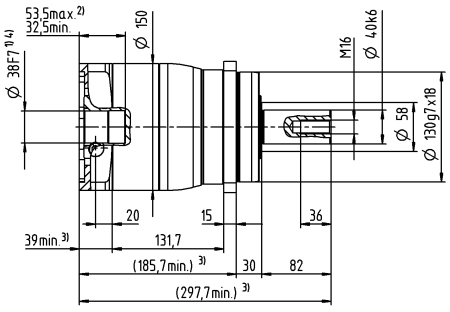


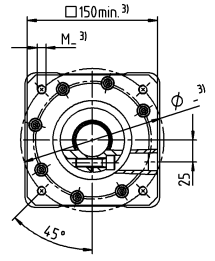




up to 38 [4] (K) [5] clamping hub diameter

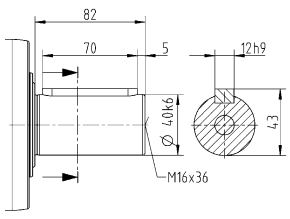




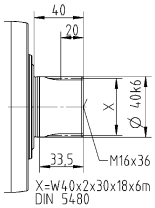


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

				1-stage		2-stage						
Ratio	**i**			**3**	**4**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]	T_{2a}		*Nm*	80	67	62	67	67	67	67	62	67
			in.lb	708	593	549	593	593	593	593	549	593
Max. acceleration torque [e)] (max. 1000 cycles per hour)	T_{2B}		*Nm*	55	42	39	42	42	42	42	39	42
			in.lb	487	372	345	372	372	372	372	345	372
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)	T_{2Not}		*Nm*	80	80	80	80	80	80	80	80	80
			in.lb	708	708	708	708	708	708	708	708	708
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)	n_{1N}		*rpm*	2600	2800	3800	4000	3800	4000	4300	4600	4600
Max. input speed	n_{1Max}		*rpm*	8000	8000	10000	10000	10000	10000	10000	10000	10000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)	T_{012}		*Nm*	0.98	0.78	0.34	0.29	0.29	0.25	0.21	0.21	0.19
			in.lb	8.7	6.9	3	2.6	2.6	2.2	1.9	1.9	1.7
Max. backlash	j_t		*arcmin*	≤ 8		≤ 10						
Torsional rigidity [b)]	C_{t21}		*Nm/arcmin*	4	4	4	4	4	4	4	4	4
			in.lb/arcmin	35	35	35	35	35	35	35	35	35
Max. axial force [c)]	F_{2AMax}		*N*	2400		2400						
			lb_f	540		540						
Max. lateral force [c)]	F_{2QMax}		*N*	2800		2800						
			lb_f	630		630						
Max. tilting moment	M_{2KMax}		*Nm*	152		152						
			in.lb	1345		1345						
Efficiency at full load	η		%	97		95						
Service life	L_h		*h*	> 20000		> 20000						
Weight (incl. standard adapter plate)	*m*		*kg*	1.9		2						
			lb_m	4.2		4.4						
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}		*dB(A)*	≤ 59		≤ 58						
Max. permitted housing temperature			*°C*	+90		+90						
			°F	+194		+194						
Ambient temperature			*°C*	–15 to +40		–15 to +40						
			°F	+5 to +104		+5 to +104						
Lubrication				Lubricated for life								
Direction of rotation				In- and output same direction								
Protection class				IP 65								
Elastomer coupling (recommended product type – validate sizing with cymex®)				ELC-0060BA016.000-X								
Bore diameter of coupling on the application side			*mm*	X = 012.000 - 032.000								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	Z	8	J_1	*kgcm²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	–	–	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	A	9	J_1	*kgcm²*	0.25	0.19	0.04	0.04	0.03	0.03	0.03	0.03	0.03
				10^{-3} *in.lb.s²*	0.22	0.17	0.04	0.04	0.03	0.03	0.03	0.03	0.03
	B	11	J_1	*kgcm²*	0.26	0.21	0.06	0.06	0.05	0.05	0.05	0.05	0.05
				10^{-3} *in.lb.s²*	0.23	0.19	0.05	0.05	0.04	0.04	0.04	0.04	0.04
	C	14	J_1	*kgcm²*	0.34	0.28	0.14	0.14	0.14	0.13	0.13	0.14	0.13
				10^{-3} *in.lb.s²*	0.3	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	D	16	J_1	*kgcm²*	0.47	0.41	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.42	0.36	–	–	–	–	–	–	–
	E	19	J_1	*kgcm²*	0.55	0.49	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	0.49	0.43	–	–	–	–	–	–	–

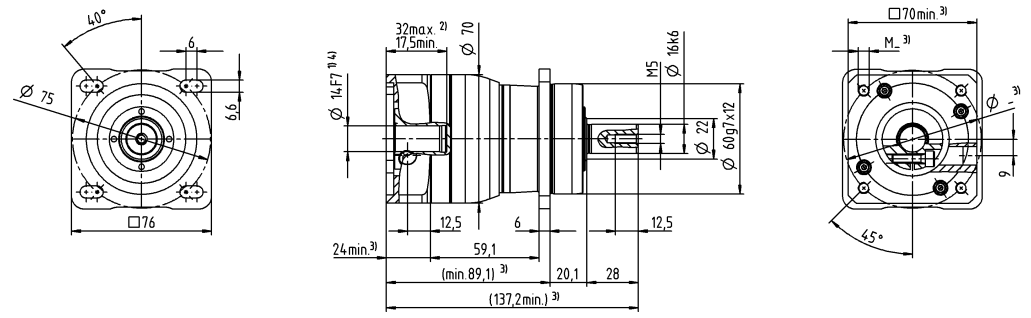
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

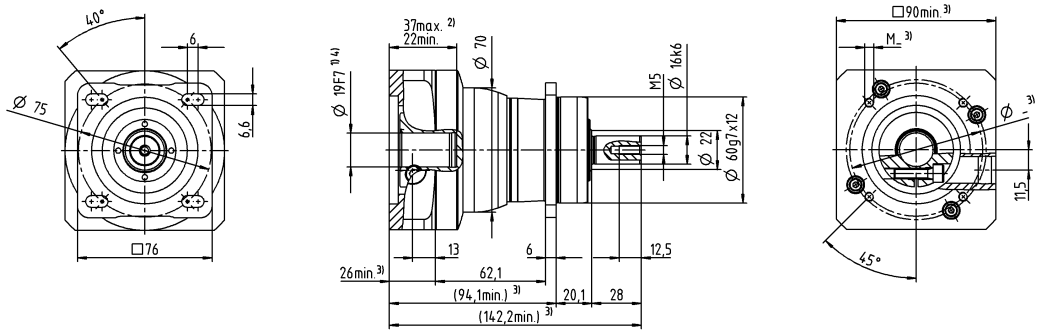
Motor shaft diameter [mm]

1-stage

up to 14 [4] (C) [5] clamping hub diameter

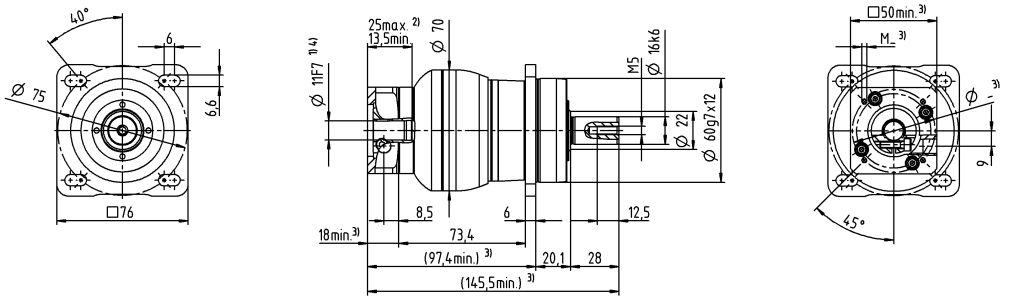


up to 19 [4] (E) clamping hub diameter

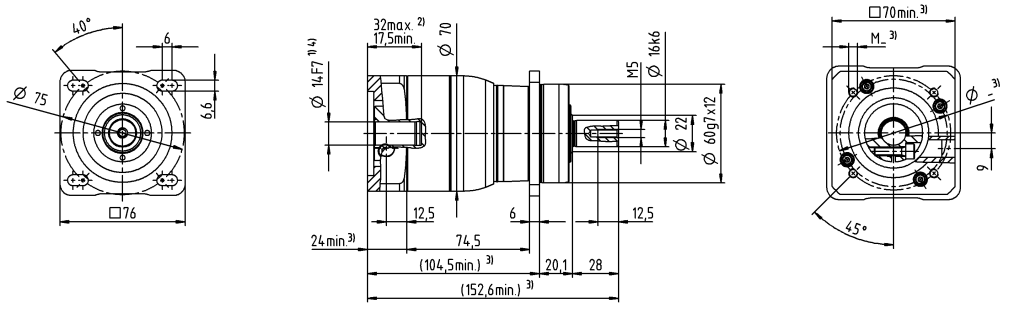


2-stage

up to 11 [4] (B) [5] clamping hub diameter

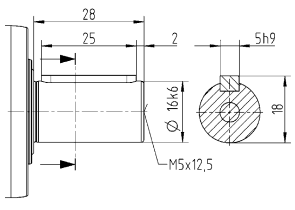


up to 14 [4] (C) clamping hub diameter

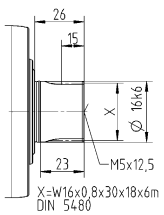


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
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Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	185	185	185	185	185	185	185	185	168	185
				in.lb	1637	1637	1637	1637	1637	1637	1637	1637	1487	1637
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	125	115	125	125	120	115	115	115	105	115
				in.lb	1106	1018	1106	1106	1062	1018	1018	1018	929	1018
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	190	190	190	190	190	190	190	190	190	190
				in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	2400	2600	2800	3500	3700	3500	3700	4000	4300	4300
Max. input speed			n_{1Max}	*rpm*	7000	7000	8000	8000	8000	8000	8000	8000	8000	8000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	1.8	1.5	0.67	0.55	0.47	0.46	0.4	0.34	0.33	0.29
				in.lb	16	13	5.9	4.9	4.2	4.1	3.5	3	2.9	2.6
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	12	12	12	12	12	12	12	12	12	12
				in.lb/arcmin	106	106	106	106	106	106	106	106	106	106
Max. axial force [c)]			F_{2AMax}	*N*	3350		3350							
				lb_f	754		754							
Max. lateral force [c)]			F_{2QMax}	*N*	4200		4200							
				lb_f	945		945							
Max. tilting moment			M_{2KMax}	*Nm*	236		236							
				in.lb	2089		2089							
Efficiency at full load			η	%	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	3.7		4							
				lb_m	8.2		8.8							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 61		≤ 59							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0060BA022.000-X									
Bore diameter of coupling on the application side				*mm*	X = 012.000 - 032.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	A	9	J_1	*kgcm²*	–	–	0.26	0.22	0.21	0.21	0.2	0.19	0.19	0.19
				10^{-3} in.lb.s²	–	–	0.23	0.19	0.19	0.19	0.18	0.17	0.17	0.17
	B	11	J_1	*kgcm²*	–	–	0.28	0.24	0.23	0.23	0.22	0.21	0.21	0.21
				10^{-3} in.lb.s²	–	–	0.25	0.21	0.2	0.2	0.19	0.19	0.19	0.19
	C	14	J_1	*kgcm²*	0.58	0.47	0.35	0.31	0.3	0.3	0.3	0.29	0.28	0.28
				10^{-3} in.lb.s²	0.51	0.42	0.31	0.27	0.27	0.27	0.27	0.26	0.25	0.25
	D	16	J_1	*kgcm²*	0.73	0.62	0.48	0.44	0.43	0.43	0.42	0.41	0.41	0.41
				10^{-3} in.lb.s²	0.65	0.55	0.42	0.39	0.38	0.38	0.37	0.36	0.36	0.36
	E	19	J_1	*kgcm²*	0.81	0.71	0.56	0.52	0.51	0.52	0.51	0.5	0.5	0.49
				10^{-3} in.lb s²	0.72	0.63	0.5	0.46	0.45	0.46	0.45	0.44	0.44	0.43
	G	24	J_1	*kgcm²*	1.8	1.7	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.6	1.5	–	–	–	–	–	–	–	–
	H	28	J_1	*kgcm²*	1.6	1.4	–	–	–	–	–	–	–	–
				10^{-3} in.lb.s²	1.4	1.2	–	–	–	–	–	–	–	–

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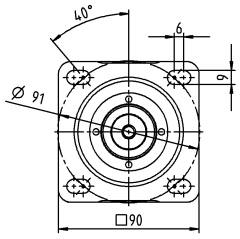
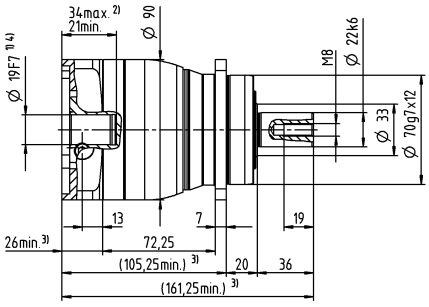
[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

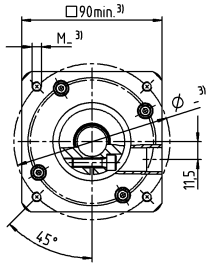
Motor shaft diameter [mm]

1-stage

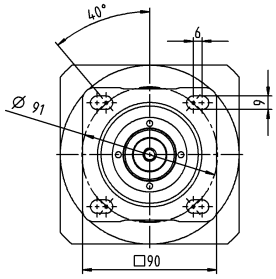
up to 19 [4] (E) [5] clamping hub diameter

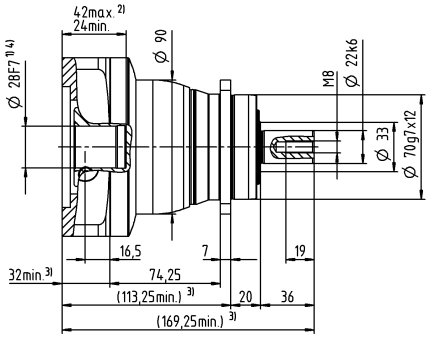


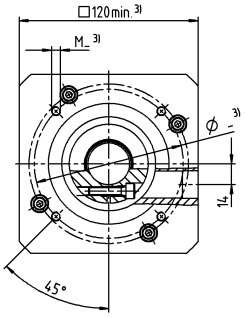




up to 28 [4] (H) clamping hub diameter

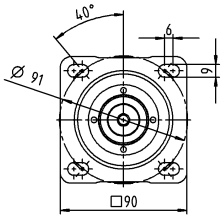


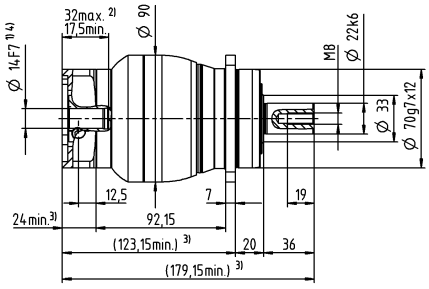


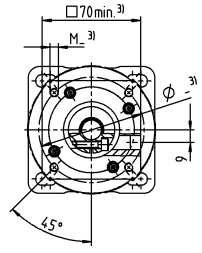


2-stage

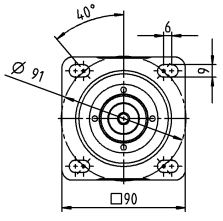
up to 14 [4] (C) [5] clamping hub diameter

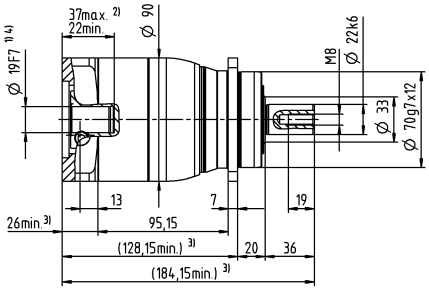


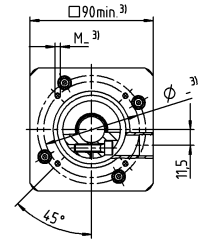




up to 19 [4] (E) clamping hub diameter

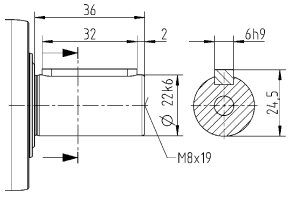




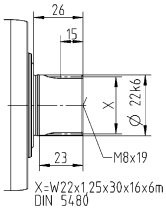


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter

					1-stage		2-stage							
Ratio			**i**		**3**	**4**	**9**	**12**	**15**	**16**	**20**	**28**	**30**	**40**
Max. torque [a) b) e)]			T_{2a}	*Nm*	480	480	480	480	480	480	480	480	432	480
				in.lb	4248	4248	4248	4248	4248	4248	4248	4248	3824	4248
Max. acceleration torque [e)] (max. 1000 cycles per hour)			T_{2B}	*Nm*	305	305	305	305	300	305	305	305	270	305
				in.lb	2699	2699	2699	2699	2655	2699	2699	2699	2390	2699
Emergency stop torque [a) b) e)] (permitted 1000 times during the service life of the gearbox)			T_{2Not}	*Nm*	500	500	500	500	500	500	500	500	500	500
				in.lb	4425	4425	4425	4425	4425	4425	4425	4425	4425	4425
Permitted average input speed [d)] (at T_{2N} and 20 °C ambient temperature)			n_{1N}	*rpm*	1800	2000	2600	3300	3400	3300	3400	3600	3900	3900
Max. input speed			n_{1Max}	*rpm*	6000	6000	7000	7000	7000	7000	7000	7000	7000	7000
Mean no load running torque [b)] (at n_1 = 3000 rpm and 20 °C gearbox temperature)			T_{012}	*Nm*	3.5	2.8	1.7	1.4	1.2	1.2	1.1	0.93	0.88	0.81
				in.lb	31	25	15	12	11	11	9.7	8.2	7.8	7.2
Max. backlash			j_t	*arcmin*	≤ 8		≤ 10							
Torsional rigidity [b)]			C_{t21}	*Nm/arcmin*	30	30	30	30	30	30	30	30	30	30
				in.lb/arcmin	266	266	266	266	266	266	266	266	266	266
Max. axial force [c)]			F_{2AMax}	*N*	5650		5650							
				lb_f	1271		1271							
Max. lateral force [c)]			F_{2QMax}	*N*	6600		6600							
				lb_f	1485		1485							
Max. tilting moment			M_{2KMax}	*Nm*	487		487							
				in.lb	4310		4310							
Efficiency at full load			η	*%*	97		95							
Service life			L_h	*h*	> 20000		> 20000							
Weight (incl. standard adapter plate)			m	*kg*	8.6		9							
				lb_m	19		20							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)			L_{PA}	*dB(A)*	≤ 65		≤ 61							
Max. permitted housing temperature				*°C*	+90		+90							
				°F	+194		+194							
Ambient temperature				*°C*	–15 to +40		–15 to +40							
				°F	+5 to +104		+5 to +104							
Lubrication					Lubricated for life									
Direction of rotation					In- and output same direction									
Protection class					IP 65									
Elastomer coupling (recommended product type – validate sizing with cymex®)					ELC-0150BA032.000-X									
Bore diameter of coupling on the application side				*mm*	X = 019.000 - 036.000									
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	*kgcm²*	–	–	0.6	0.59	0.6	0.43	0.42	0.37	0.52	0.36
				10^{-3} *in.lb.s²*	–	–	0.53	0.52	0.53	0.38	0.37	0.33	0.46	0.32
	D	16	J_1	*kgcm²*	–	–	0.75	0.74	0.74	0.58	0.57	0.5	0.67	0.51
				10^{-3} *in.lb.s²*	–	–	0.66	0.65	0.65	0.51	0.5	0.44	0.59	0.45
	E	19	J_1	*kgcm²*	2.5	1.7	0.84	0.83	0.83	0.66	0.65	0.6	0.75	0.6
				10^{-3} *in.lb.s²*	2.2	1.5	0.74	0.73	0.73	0.58	0.58	0.53	0.66	0.53
	G	24	J_1	*kgcm²*	3.3	2.4	1.9	1.9	1.9	1.7	1.7	1.6	1.8	1.6
				10^{-3} *in.lb.s²*	2.9	2.1	1.7	1.6	1.7	1.5	1.5	1.5	1.6	1.4
	H	28	J_1	*kgcm²*	3	2.2	1.6	1.6	1.6	1.4	1.4	1.3	1.5	1.3
				10^{-3} *in.lb.s²*	2.7	1.9	1.4	1.4	1.4	1.2	1.2	1.2	1.3	1.2
	I	32	J_1	*kgcm²*	7.1	6.2	–	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	6.3	5.5	–	–	–	–	–	–	–	–
	K	38	J_1	*kgcm²*	8.3	7.4	–	–	–	–	–	–	–	–
				10^{-3} *in.lb.s²*	7.3	6.5	–	–	–	–	–	–	–	–

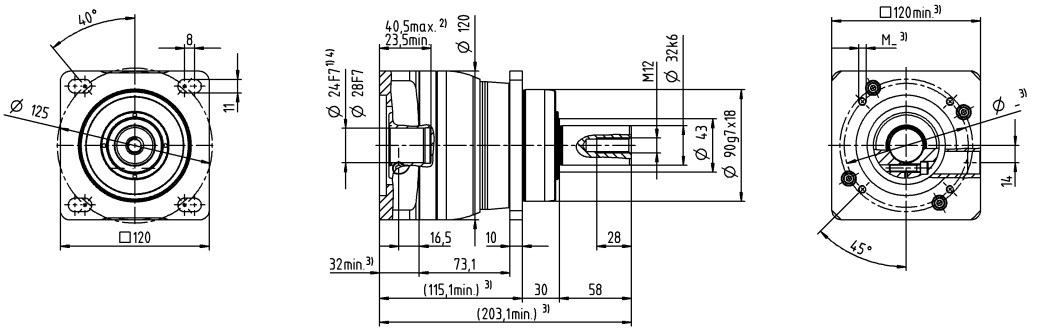
Please use our sizing software cymex® for a detailed sizing – **www.wittenstein-cymex.com**

[a)] Valid for torque transmission only
[b)] Valid for standard clamping hub diameter
[c)] Refers to center of the output shaft or flange
[d)] Please reduce input speed at higher ambient temperatures
[e)] Valid for: Smooth shaft

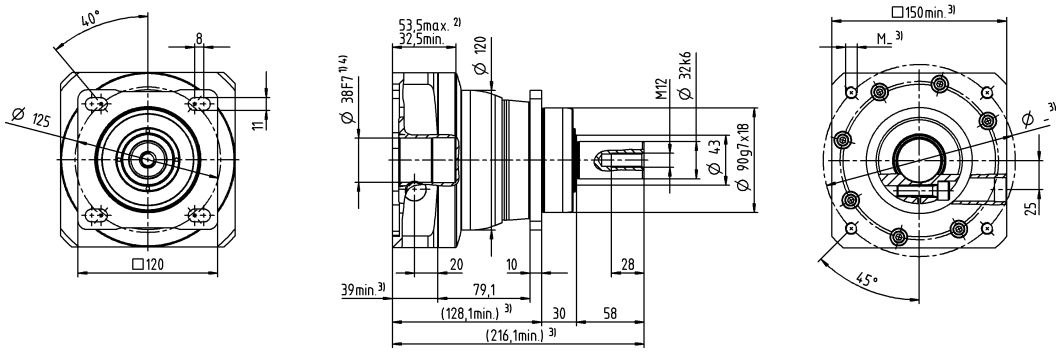
Motor shaft diameter [mm]

1-stage

up to 24/28 [4] (G [5]/H) clamping hub diameter

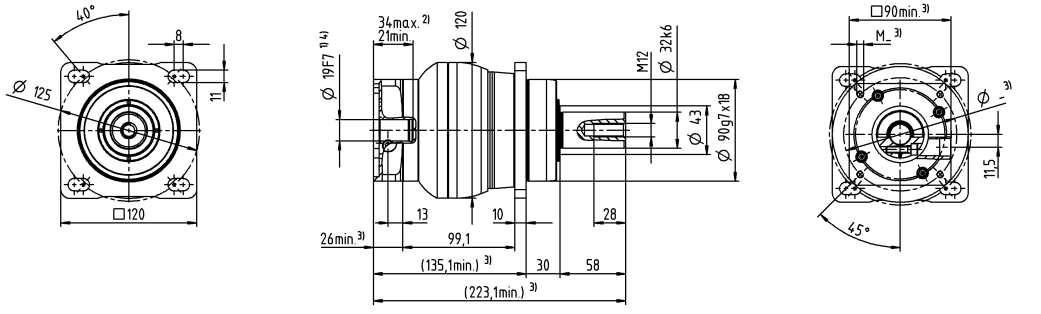


up to 38 [4] (K) clamping hub diameter

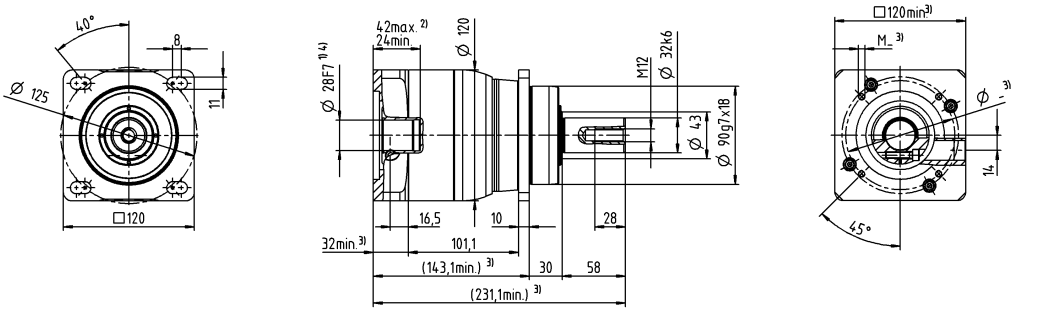


2-stage

up to 19 [4] (E) [5] clamping hub diameter

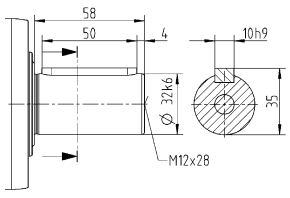


up to 28 [4] (H) clamping hub diameter

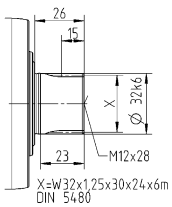


Other output variants

Shaft with key



Splined shaft (DIN 5480)



Non-tolerated dimensions are nominal dimensions
[1] Check motor shaft fit
[2] Min. / Max. permissible motor shaft length
Longer motor shafts are possible, please contact alpha
[3] The dimensions depend on the motor
[4] Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm
[5] Standard clamping hub diameter